

RED ROCKS COMMUNITY COLLEGE

1996 ~ CATALOG ~ 1997



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Red Rocks Community College

1996-97 Catalog

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RED ROCKS COMMUNITY COLLEGE 1996-97 CATALOG

Accredited by

The Commission on Institutions of Higher Education of the
North Central Association of Colleges and Schools

Programs approved by

State Board for Community Colleges and Occupational Education

This catalog is effective beginning Fall Semester 1996.



Red Rocks Community College
Let Your Future Begin Here

13300 West Sixth Avenue, Lakewood, Colorado 80401-5398
(303) 988-6160

Red Rocks’ Focus on Learning

Dear Students:

There are many things that make Red Rocks stand out among excellent colleges. Small classes, personalized attention, a friendly learning environment, and beautiful campus locations at the foot of the Rocky Mountains are just some that our students mention most frequently.

For me, what makes Red Rocks most unique is our focus on learning. That may surprise you. Of course you come to college to learn. But in fact, our educational tradition has focused on teaching. In the past, we tended to convene students in a particular place at a particular time in order to teach them in a particular way. That’s no longer the case.

At Red Rocks, we understand that no two students are alike. Different students have different educational goals. Different students have different scheduling and location needs. Different students have different learning styles. We take all of these things into account.

Our focus on learning means that we focus on helping students achieve their educational goals.

Red Rocks helps those wishing to pursue a career develop professional competencies that get them jobs. How do we know? Ninety-six percent of employers we survey say that Red Rocks graduates are good or excellent employees.

Red Rocks helps those wishing to transfer to four-year colleges and universities master core competencies that not only get them accepted, but get them ahead. How do we know? Red Rocks graduates get better grades at four-year schools than their fellow students who have been at the four-year schools all along. The typical GPA? 3.10.

Red Rocks helps those wishing to upgrade their workplace skills advance in the jobs they have and get the jobs they want. How do we know? We partner with employers to make sure that the skills our students learn are the ones employers are looking for.

Our focus on learning means that we offer flexibility and variety in the way we schedule and deliver learning opportunities. Students can get classes anytime—literally 24 hours per day, 365 days per year. And students can get classes any place—on campus, or in the home or office through advanced technology.

Our focus on learning means that we know your learning style is as individual as your lifestyle. Our instruction reflects that: as a learner, you are unique. At Red Rocks, your learning experience will be unique.

Sincerely,

Dorothy A. Horrell, Ph.D
President

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C College Calendar 1996-97

FALL SESSION 1996: AUGUST-DECEMBER

July 15.....	Registration Begins
August 16.....	New Student Orientation
August 16.....	Registration Payment Due
August 19.....	Faculty Advising (Lakewood Campus)
August 23.....	International Student Testing and Orientation
August 26.....	Classes Begin at Lakewood and Mountain Campuses
August 30.....	No Evening Classes
August 31-September 2.....	No Classes; Labor Day Holiday (All Campuses Closed)
September 3.....	Classes Begin on the Arvada Campus
September 6.....	Weekend Classes Begin, now and throughout the Fall
September 11.....	Last Day to Drop and Initiate a Tuition Refund
September 11.....	Deadline for Credit/Audit Changes
September 11.....	Application Deadline for Fall Graduation
October 22.....	No Classes
October 23.....	Arvada Campus Second Seven-Week Classes Begin
November 15.....	Last Day to Withdraw from Classes ("W" Recorded-No Refund)
November 27-December 1.....	Fall Break (No Classes)
November 28.....	Thanksgiving Holiday (All Campuses Closed)
December 15.....	Fall Sessions End*
December 25-January 1.....	Winter Break (All Campuses Closed)

SPRING SESSION 1997: JANUARY-MAY

December 2.....	Registration Begins
January 6.....	Faculty Advising (Lakewood Campus)
January 13.....	Classes Begin at the Lakewood and Mountain Campuses
January 17.....	Weekend Classes Begin now and throughout the Spring
January 20.....	Martin Luther King, Jr. Day (No Classes, All Campuses Open)
January 21.....	Spring Classes Begin at the Arvada Campus
January 29.....	Application Deadline for Spring Graduation
March 11.....	Arvada Campus Second Seven-Week Classes Begin
March 17-23.....	Spring Break (No Classes)
March 28.....	No Evening Classes
March 29-30.....	No Classes
April 8.....	No Classes
May 6.....	Spring Sessions End*
May 8-23.....	May Days Session
May 9.....	Commencement

SUMMER SESSION 1997: MAY-AUGUST

April 14.....	Registration Begins
May 26.....	Memorial Day Holiday (College Closed)
May 27.....	Ten Week Classes Begin, (Other Classes Begin throughout the Summer)
May 30.....	Weekend Classes Begin now and throughout the Summer
June 3.....	Application Deadline for Summer Graduation
July 4.....	Independence Day Holiday (All Campuses Closed)
July 4-7.....	Summer Break (College Open; No Classes)
August 8.....	Summer Sessions End*

Please Note:

- Courses begin and end throughout each session and may have different starting and ending dates. Please refer to the appropriate *Class Planning Schedule* for specific dates.
- In addition to the courses appearing in the *Class Planning Schedule*, other specialized courses and programs are available throughout the year. Beginning and ending dates may vary. Please refer to appropriate literature for specific offerings and dates.
- Although this catalog has been prepared on the basis of the best information available at the time, all information (including the admission and graduation requirements, instructional programs, college calendar, course descriptions and statements of tuition and fees, etc.) is subject to change without notice or obligation.

Cover Art: *The Advertising Consortium*

General Information

Red Rocks Community College is one of the fastest-growing of the 12 comprehensive junior and community colleges within the Colorado Community College and Occupational Education System. It is governed by the State Board for Community Colleges and Occupational Education.

Mission

The mission of Red Rocks Community College is to develop and support lifelong learners so that they may live fuller lives and add value to the communities in which they live and work.

Purpose

The purpose of Red Rocks Community College is to give students opportunities for lifelong learning as a foundation for full participation in the global community. To do this, we provide:

- The first two years of baccalaureate education for transfer to four-year colleges and universities.
- Occupational and business education designed to meet individual, local and regional employer needs.
- Customized training and consulting for the public and private sector.
- Basic skills education to give under-prepared students access to post-secondary education, entry-level employment, or job upgrades.
- Student support services ranging from financial aid to child care that assist students with diverse backgrounds, needs and educational objectives.
- Community services including cultural programs, non-credit offerings, and forums designed to encourage diversity of thought about public issues.

Values

Red Rocks Community College celebrates learning as the process that changes and improves lives. Our students benefit from the friendly, caring and supportive environment that is created by our knowledgeable, dedicated and helpful faculty and staff. Our respect for the diverse individuals and communities we serve nurtures the special spirit of Red Rocks Community College. By setting standards of excellence for ourselves and by placing a high value on integrity, honesty, teamwork, communication and innovation, we assist others in realizing their greatest potential.

Campus Locations

Lakewood Campus

13300 West Sixth Avenue

Lakewood, CO 80401-5398

Phone: (303) 988-6160

Red Rocks Community College was established in 1969 as a new campus of the Community College of Denver to the west. It moved from a temporary site on West Quail Street in Lakewood to the present 140 acre main campus in phases from 1971-1975. On July 1, 1983, the Red Rocks Campus became Red Rocks Community College—its own entity within the Colorado State system. In 1990, campuses were established in Arvada and Conifer to meet growing demands for Red Rocks' services.

Today, the college serves more than 17,500 students from throughout Colorado, the U.S. and around the world annually. The typical student is 31 years old, working and attending school part-time. More than 500 courses and 70 different programs and complete scheduling flexibility meet a variety of educational goals, including professional certification, a transferrable two-year degree and updated job skills.

Arvada Campus

Ridge Home Site

10185 Ridge Road

Arvada, CO 80033

Phone: (303) 420-9550

Established in 1990, the Arvada Campus is known for its innovative schedule options, convenient location and friendly atmosphere. A variety of services are offered here, including general classrooms, computer classrooms, an open Computer Lab, a Learning Development Center, Social Sciences Self-Paced Lab, Math Lab, Writing Lab and an Advising Center.

Mountain Center

26689 Pleasant Park Road

Conifer, CO 80433

Phone: (303) 838-4807

Established in 1990, the Mountain Center houses general purpose classrooms, a Computer Lab, a self-paced Math and Social Science Center and a Writing Lab. Services include assessment testing, advising, financial aid information, registration and on-site textbook sales.



Admissions Information

Admissions

Red Rocks Community College welcomes anyone who can benefit from our instructional programs and courses, including high school graduates and non-graduates 18-years-old or older. Admission does not assure acceptance into a particular course or program. Some programs have limited space and special admissions procedures; applicants for these programs must contact the particular division. Although you may enroll in any course in which there is a reasonable expectation for completion, if you have a learning deficiency, you may be requested to enroll in courses designed to correct it.

The college may review your enrollment if you do not appear to be profiting from instruction and whose enrollment poses a hazard to themselves or others. Questions of admissibility are reviewed by the Vice President of Learning Design and Support Services and the President who will make the final decision. Admission based on false statements or documents may be reversed and credits completed under these circumstances may be revoked.

Admissions Procedures

1. Submit an "Application for Admission" form (available in Admissions) at **(303) 914-6354**, including the declaration of program, major or area of study. If you are undecided, contact the Career Resource Center at **(303) 914-6255**.
2. Take a basic skills assessment test before registration to assist in making appropriate educational plans.
Information: **(303) 914-6243**

Credit for Prior Learning

If you are currently enrolled, you may receive credit for college-equivalent learning which has been acquired through earlier schooling, work or other life experiences if it is comparable to Red Rocks curricula and relates to your educational program.

Credit for prior learning is granted through the Learning and Resource Center (LARC) which uses the following evaluation methods: challenge exams; published guidelines for military and corporate training programs; portfolio assessment; selected College Level Examination Program (CLEP), Advanced Placement and other standardized examinations. Information: **(303) 914-6243**

High School Students

High school students may earn Red Rocks credits and high school credits at the same time. To enroll at Red Rocks, high school students must follow the admissions procedures described above, and:

1. See your high school counselor to make arrangements for certification of credit.
2. Submit a special "Underage Student Application" form, available in Admissions with your assessment test scores.
Information: **(303) 914-6354**

Please see Warren Occupational Technical Center, page 10.

Inter-Institutional Registration

Admissions can assist you with concurrent registration at the University of Colorado at Denver or Metropolitan State College of Denver. International students must meet the host institution's English language proficiency requirements.

International Students

The International Student Program consists of orientation, academic advising, special activities, ESL program coordination, housing referral and mentoring. (*Registration and International student advising are handled through Admissions.*)
Information: **914-6538**.

Red Rocks is authorized under federal law to enroll non-immigrant, alien students. International students are required to submit the following documents for admission:

1. Application for Admission
2. One certified English translation of an official high school, college or equivalent transcript
3. A statement of financial resources ("*Affidavit of Support*") sufficient to provide for tuition, books and living expenses for stay in the United States
4. A minimum score of 475 on the TOEFL test (*Alternatives to this requirement may be one of the following: a Michigan [MTELP] with a score of 75; satisfactory completion of the high est level of an approved intensive ESL program; satisfactory completion of English 121 or higher from an approved school; or a U.S. high school diploma, including two years of attendance.*)
5. Proof of Insurance (*International students without insurance must obtain applications from the International Student Specialist in Admissions.*)
6. "Guarantee of Support" letter from the appropriate embassy, consulate or other sponsor
7. Passport (*with visa stamp*), I-94 (*with arrival/departure stamp*), and I-20 I.D. copy from any previous U.S. colleges.

Form I-20A is issued to an International student when all the above documents are on file in Admissions and a decision to admit the student is made. International students should allow sufficient time to gather and submit all required documentation so that admittance may be determined prior to the beginning of the session. International students are not admitted after the 5th day of the session.

International students must also comply with the following:

1. The ASSET test is required for all International students and students are required to follow the placement recommendations indicated as a result of this test.
2. International students are expected to comply with immigration requirements with respect to the number of credit hours taken at their home campus.
U.S. Immigration and Naturalization Service Regulations require that International students on F-1 visas carry and complete a full course of study (*minimum of 12 credit hours per semester*) and that they complete their educational objectives within a reasonable period of time.
Unauthorized courses will not be recognized by Red Rocks. International students from other colleges pursuing course work at Red Rocks must provide authorization from their home campus in addition to an "Application for Admission prior to being admitted to Red Rocks."
3. International students are considered out-of-state (non-residents) for tuition purposes. Contact International student specialists in Admissions at **(303) 914-6349** for information.

Readmission of Former Students

If you are returning to Red Rocks after an absence of more than one year, you must apply for readmission. If you have earned credit at another college in the interim, you must also submit a transcript. Subsequent registration is contingent upon receipt of all required documents, which become property of the college.

Transcripts

If you are interested in having your Red Rocks transcripts forwarded to an educational institution or to an employer, a "Transcript Request" form is available in Admissions. Transcripts will not be provided for students who have not fulfilled all financial obligations to the college.

Transfer of Credit

If you are pursuing a degree or certificate and wish previous college credits to be considered for transfer, submit official transcripts to Admissions no later than the semester preceding graduation. Veterans using V.A. benefits must submit transcripts of all previous post-secondary education and training within 30 days after the beginning of their first class.

1. Initial transcript evaluation is done in Admissions.
2. Grade point average (GPA) from transfer institutions is not calculated into the Red Rocks Community College GPA.
3. The college reserves the right to validate and examine all credits to determine obsolescence of content. In the event that course work is found to be obsolete, the student may be required to update the credit.
4. The college allows students to challenge courses by taking special exams and/or earning credit for prior learning. Contact the Learning and Resource Center (LARC) for more information at **(303) 914-6243**.
5. The college will accept transfer credit only from post-secondary institutions accredited by one of the six regional accrediting associations. Credits earned by a student enrolled in a state system community college which are applicable to a specific AAS degree or occupational certificate shall be accepted as meeting degree or certificate requirements in an equivalent program.

Tuition and Fees

Tuition and Fees

Tuition rates are set annually by the State Board for Community Colleges and Occupational Education. In addition to tuition, there is a non-refundable registration fee, a parking/student fee and a Student Life Center fee. For current tuition and fee rates, deadlines and methods of payment, consult the latest Class Planning Schedule.

Non-Resident Students

For tuition purposes, Colorado law determines whether a student is classified as in-state (*resident*) or out-of-state (*non-resident*). Your initial classification is based on information supplied on the "Application for Admission".

To change a non-resident to resident status, obtain a petition form for in-state status from Admissions. A copy of the regulations governing residency classification is a part of the petition. Deadlines for submission of the petition are published each session. Petitions received after the deadline will not be considered until the following session.

Changes in classification become effective at the time of your next registration. The final decision regarding tuition status is determined by the Vice President of Learning Design and Support Services.

Senior Citizens Tuition

In-state students over the age of 60 may be eligible for a one-half tuition grant for courses taken for credit. Complete the "Senior Citizens Grant Program" form available in the Financial Aid Office. All fees will be assessed.

Veterans

Veterans will be certified only for courses that apply to their degree programs. Details about veterans' benefits is available in Admissions. Information: **(303) 914-6353**.

Financial Obligations of Students

Payments for tuition, fees and materials are due on the specified date published in the *Class Planning Schedule* or at the time the obligations are incurred. You are not considered officially registered until tuition and fees are paid. If you are in any way financially obligated to the college or have failed to account for college property in your possession, you may be denied a transcript and registration for subsequent sessions until you have made a satisfactory arrangement with the college.

Educational Planning Services

Red Rocks is a community of learners of all ages and life experiences. We understand that learning is a lifelong proposition and welcome students at any life or educational juncture. The following tools are available to assist in educational planning.

Advising

After completing the basic skills assessment required for admission, you are encouraged to obtain advising for help with selecting and scheduling courses; determining prerequisites; faculty assistance for specific program information; graduation requirement evaluation and appropriate application of assessment test results. Advisors can also help with specific program planning if you intend to transfer to a four year college or university. (See *Transfer Agreements with Four-Year Colleges and Universities.*) Information: (303) 914-6255.

Assessment

If you are a new student, it's important to determine where you fit in college-level courses. If you have no prior college experience or have not taken the ACT or SAT test, you must take the ASSET test to measure your abilities in writing, reading, math and study skills before you can register. Assessment testing is scheduled daily in the Learning and Resource Center on the Lakewood Campus, and by appointment in Arvada and at the Mountain Center. Information: (303) 914-6243.

Career Planning and Workplace Experience

If you are planning for your first career, a midcourse career change, or want to enhance your existing job skills, Red Rocks Career Development specialists can help. Using career and interest inventories and computerized information, they can help you select what you need from among hundreds of options. They can also help you take advantage of Red Rocks Career Development Seminar and the Colorado Career Information System (COCIS) as well as Red Rocks' Cooperative Education/Internship Program. Finally, Career Development specialists can help with referrals through consultation with faculty, staff, community resources, as well as other colleges and universities. Information: (303) 914-6255 or (303) 914-6258. *Career counselors help students reach their educational goals.*

Learning and Resource Center (LARC)

The latest in state-of-the-art technological resources, the Lakewood campus LARC is a friendly, comfortable center where you can access a variety of learning tools. These include: videos, CD-ROMs and on-line computer services in addition to the more traditional library materials. Take advantage of the LARC's facilities for computer-assisted instruction, self-paced courses, telecourses, videoconferences and one-on-one discussions or small group seminars. The LARC staff can not only help you find the resources you need for specific classes, they can help you determine your skill levels. If you need to brush up, they can get you tutoring and other special services to help you succeed in areas such as computers, math, social sciences, English and foreign languages. Services for special populations are also accessible through the LARC and its staff.

LARC Services*

■ Assessment/Testing

ASSET (Basic Skills Assessment test)
Certification testing for business and industry
Evaluation of prior learning for college credit
Other special testing services

■ One-to-One Instruction

Computer-assisted instruction
Distance education (two-way interactive audio and video instruction)
Learning assistance in math, language, writing and developmental studies
Self-paced courses, such as English, Math and Social Sciences
Telecourses

■ Library

On-line computer research services
Text materials
Audio, video and CD-ROMS

■ Services for Special Populations

Computer Access Center

**Many of these services are also available at the Arvada Campus (303)420-9550 and at the Mountain Center (303)838-5588.*

Tutoring

Tutoring services are available for occupational students having difficulty with their classes and for transfer majors whose grades fall below average in selected content areas. Free tutoring and vocational assessment are provided to students who are applied science majors. Information: (303) 914-6376.

A weekly study skills seminar, tutoring for the General Education Diploma (GED), and preparation for the ACT, SAT, PLACE, GRE and TOEFL examinations are available from the Learning and Resource Center (LARC). Information: (303) 914-6243.

Tutoring in math, economics, chemistry and physics is available in the LARC at the Lakewood Campus. Information: (303) 914-6236.

Tutors are available to assist you with your writing skills by identifying problem areas and providing one-on-one instruction in the LARC Writing Center on the Lakewood Campus (303) 914-6589, the Arvada Campus (303) 420-9550 and the Mountain Center (303) 838-5588.

Additional Learning Opportunities

Red Rocks recognizes that today's students lead busy lives that require juggling home, work, family and community responsibilities as well as the need to meet educational goals. The college offers a variety of learning innovations that make our offerings available to you 24 hours a day 365 days per year.

Arranged Courses

You can work with your instructors to schedule course times, days and locations to meet your individual needs.

Computer-Assisted Instruction

Many courses in Red Rocks academic, occupational and remedial programs are offered or supplemented with computer-assisted instruction. Information: **(303) 914-6254**

Cooperative Education/Internships

As an extension and application of classroom learning, many opportunities are available for work experience under the supervision of professional business and industry personnel. A qualified faculty member coordinates and supervises the program, working with you and the employer during site visits, over the telephone and through student and supervisor reports.

A "Training Agreement" signed by you, the college and the employer defines the responsibilities of all parties. In addition, the student identifies job-oriented learning objectives for approval by the work supervisor and faculty coordinator. Weekly time sheets, appropriate individual assignments and a final report are also required to comply with specific program requirements. Evaluation of the work experience is similar to that used in other courses, with additional emphasis on the employer's rating which constitutes part of the final evaluation process.

A minimum of 45 clock hours of cooperative work experience are required to earn each hour of college Co-op credit. Most program areas offer work experience opportunities, and some require them for graduation. The total number of credit hours which may apply toward a degree in a specific instructional program is identified in the program requirements section of this catalog.

For programs not requiring work experience, Co-op is considered an approved substitute or an elective upon permission of the faculty advisor.

All Cooperative Education/internship courses carry a course/program prefix and are numbered 297. Permission of the faculty coordinator and cooperative education employer supervisor are required to enroll. Unless waived by the appropriate instructional vice president, COE 296 or COM 115 Job Search Process is also required. Information: **(303) 914-6361**.

Independent Study

Most areas of study at Red Rocks offer opportunities to engage in intensive study and/or research on a topic under the direction of a qualified faculty member. Independent study course content, credit and contact hours are determined jointly by you, the appropriate instructional vice president and the instructor, whose permission is required prior to register. Independent Study may be taken an unlimited number of times, but no more than six semester credits may be applied to any Associate Degree program.

Live Education Transmission (LET)

Distance education technology brings two-way interactive classes from Red Rocks' Lakewood Campus to local sites in Bailey, Idaho Springs and Black Hawk. Mountain area students see, hear and talk with the instructor and students in other locations for lively exchanges using the latest information-age tools. Information: **(303) 914-6285**.

Self-Paced Courses

The ultimate in flexibility, self-paced courses in English, math and social sciences involve using textbooks, study guides and instructional aides to complete course work at your own pace and on your own time within a 15 week period. Students are encouraged to study for self-paced courses at least five to ten hours per week. Enroll at any time for self-paced courses (except for ENG 122). Courses are offered at the Lakewood and Arvada campuses and at the Mountain Center in Conifer. Information: (303) 914-6442 (Computing Services), (303) 914-6377 (English), (303) 914-6236 (Math) or (303) 914-6423 (Social Services)

Telecourses

Telecourses allow you to set your own schedule. An in-person or conference call orientation with the instructor is required; after that, view or tape the televised lessons on KRMA-TV Channel 6, read the text and study guide and complete assignments on your own time. Instructors are available by phone or in person to answer questions. Books are available by mail or at the Lakewood Campus bookstore. Information: (303) 914-6461.

On-Line Courses

Red Rocks Community College offers a number of classes over the Internet. Information: (303) 914-6227.

Weekend College

Designed for the working adult, Weekend College enables you to earn an Associate of Arts degree in two years or less, on the weekends. Transfer "core" courses, electives and a number of other courses are offered on Friday evenings, Saturdays and Sundays. Weekend College facilitates learning through group work, discussion sessions, multimedia presentations, field experiences, project-based learning and guest speakers. Weekend College courses are intensive. They have the same number of contact hours as their counterparts in more traditional formats. Information: (303) 914-6535.

Colorado Environmental Safety Training Center

The Colorado Environmental Safety Training Center offers entry-level training, certification and skill upgrades through a variety of classes and workshops. A close working relationship with local, state and federal regulatory agencies as well as local businesses makes it possible to offer the most current information, technical assistance and on-site training available. Information: (303) 914-6325.

The OSHA Training Institute Rocky Mountain Education Center

Red Rocks is one of five national Occupational Health And Safety Training Institute centers, offering hands-on experiential instruction in classes and workshops as well as consulting. Information: (303) 914-6420.

The Red Rocks Institute

The Institute is Red Rocks customized training arm, offering assistance to area businesses in developing the knowledge, skills, technical expertise and managerial qualities of their employees. Services are tailored to meet scheduling and content needs of each business. Information: (303) 987-0313

In addition, the Institute's Small Business Development Center (SBDC) provides counseling, training, information and research assistance to small businesses in all stages of development. The SBDC is sponsored jointly by the college and the U.S. Small Business Administration. Information: (303) 987-0710.

Warren Occupational Technical Center

Students at Red Rocks and the Warren Center, Jefferson County Schools' technical center for high school students, may take selected classes at either institution. The following programs, described more fully in the Warren Center Program catalog, are available to Red Rocks students:

Auto Collision Repair I, II, III & IV
Auto Mechanics I, II, III & IV
Business Services and Technology I, II, III & IV
Carpentry I, II, III & IV
Child Care I & II
Child Care/Aide
Computer Technology I & II
Dental Assisting I & II
Drafting I, II, III & IV
Horticulture I, II, III & IV
Hospitality I & II
Machinist I, II, III & IV
Manicuring I
Masonry Arts I, II, III & IV
Multimedia Communications I & II
Printing Technology I, II, III & IV
Restaurant Arts I & II
Small Engine & Motorcycle Mechanics I, II, III & IV
Welding I, II, III & IV

Warren Center and other high school students wishing to enroll in an occupational program should contact their advisors. Information: (303) 982-8603 or (303) 914-6356.

Student Resources

Bookstore

The Red Rocks Bookstore supplies new and used textbooks, recommended titles, reference books and supplies for art and drafting. College specialty items are also available. Information: **(303) 989-3794** (Lakewood Campus) or **(303) 838-5588** (Mountain Center).

Cafeteria

The Red Rocks Cafe serves hot and cold selections during peak meal hours. Information: **(303) 914-6374**.

Child Care

The Children's Center at Red Rocks offers care for toilet-trained children between 2 years, 9 months and 5 years. Red Rocks students receive a 10 percent discount. Information: **(303) 914-6328**.

Child care training and referral services, including vacancy information and nanny care, are available from Red Rocks' Family First Child Care Resource and Referral. Information: **(303) 969-9500**.

Fitness Center

To participate in a program that includes individual analysis and prescribed training for total fitness, register for PHE 100 or PHE 150. Information: **(303) 914-6375**. Conifer: **(303) 838-5588**.

Job Placement/Internships

A wide range of full-time, part-time and temporary jobs are available to current and former students through the Job Placement Office. While the college cannot guarantee employment, every effort is made to maintain ongoing contact with business and industry in order to generate appropriate employment opportunities. In addition, the Job Placement Office coordinates on-campus recruiting and presentations from business and industry; maintains job announcements and outlook surveys; and provides resume preparation, counseling, interviewing workshops and other job search skills. Details regarding the college's work-study program on campus are also available through the Job Placement Office. Information: **(303) 914-6389**

Practical job experience can extend and help you apply what you learn in the classroom. Through Red Rocks' Internship Programs, you can work, learn and get college credit while you're working for some of the area's best-known employers. Information: **(303) 914-6361**.

Financial Aid

About one-third of Red Rocks students benefit from some type of financial aid each year. Four types are available. Scholarships are generally based on academic performance, accomplishments and need. Grants-in-Aid are federal and state programs based on need. Neither scholarships nor grants require repayment. Loans provide funds while you are attending school, but must be repaid after graduation. Work-study agreements allow you to work for the college while you are enrolled. The Financial Aid Office **(303) 914-6398** can provide details and application forms for the following:

- **Scholarships:** Colorado Scholarships, Red Rocks Community College Foundation Scholarships
- **Grants:** Pell Grants, Colorado Grants, Colorado State Incentive Grants, Supplemental Educational Opportunity Grants; Colorado Diversity Grants.
- **Loans:** Stafford Student Loans, Federal Parent Loans (PLUS)
- **Self-Help:** Work Study Program; Colorado Work-Study

Once applications for financial aid have been completed and submitted, your request takes approximately 12 to 14 weeks to process. Although applications for financial aid may be submitted throughout the year, "priority dates" have been established to assure the availability of your individual award prior to your first day of classes. For example, if you submit your application before May 1, 1997, your financial aid (*if awarded*) would be available by the first day of classes for Fall 1997.

Priority Dates

To Receive Aid For:

Spring 1997
Summer 1997
Fall 1997

Apply By:

October 1, 1996
March 1, 1997
May 1, 1997

Multicultural Activities

Red Rocks is active in our multicultural community and offers individualized assistance for minority students in all aspects of our student services. There is an active Cultural Diversity Council comprising students, faculty and staff. Information: **(303) 914-6234**.

Safety

The Red Rocks Campus Police provide emergency, vehicular and victim assistance, as well as escorts to vehicles, and lost and found services. In case of an emergency on campus, call extension **6411**, otherwise call **(303) 914-6394**.

Services for Special Populations

Red Rocks provides advocacy, direction, learning skills and school-to-employment transitioning for individuals with physical or learning disabilities. Resources include adaptive computer equipment and training, such as word processing, and individualized assistance with advising, vocational assessment, career planning and instructional support. Information: **(303) 914-6376**. Direct Line for Hearing Impaired Callers: **TDD/V (303) 980-8776**.

S.T.A.R. for Grades

If you wish to obtain your grades, call **572-S.T.A.R. (572-7827)**. Press 2 for grades. Enter your Social Security Number and personal access code (which is your birth month and birthday),

Student Life Center

The Student Life Center offers various activities including: entertainment, community events, leadership programs, lectures, lockers, publications, recreation, student clubs, student ID cards and health/dental insurance details. Information: **(303) 914-6370**.

Example: July 10

Student Government Association (SGA)

SGA represents student interests within the college's governance structure and decision-making processes as well as plans various activities. To join, you must pay fees and maintain a 2.5 GPA. Information: **(303) 914-6370**.

Academic Standards

Academic Standards are those Red Rocks Community College policies and procedures that assure all aspects of the college's learning environment are functioning optimally.

Academic Integrity

At Red Rocks, academic integrity is the ethical foundation upon which the academic community pursues professional, administrative and scholarly endeavors. Everyone associated with the college's academic community has a responsibility for establishing, maintaining, and fostering understanding and respect for academic integrity. Following are some principles associated with academic integrity to which we expect students to adhere:

- Assume responsibility and take credit only for the words, and/or ideas in an academic exercise that are expressly one's own.
- Use information, computer programs, disks, another student's work, study aids, and/or other materials, only when allowed by the instructor.
- Remove materials from the library, labs, and other college facilities, only when an official representative of the college grants permission.
- Use copyrighted materials only with permission.
- Refuse to help another commit an act of academic dishonesty.

Academic dishonesty is the intentional act of fraud when an individual claims credit for the work of another, uses unauthorized materials or fabricates information in any scholarly exercise. Academic dishonesty also includes, but is not limited to, forging educational documents, damaging or destroying the works of another or assisting others in acts of academic deception.

Students aware of an incident of academic dishonesty should report the occurrence to a faculty member, department chair or administrator. Students committing academic dishonesty will be subject to disciplinary action: failing the assignment and/or course, and/or being expelled from the college.

Attendance

To get the most benefit from your instruction, you should attend each class, come to class prepared, arrive on time, hand in assignments when due and take exams when scheduled. In addition, you need to comply with attendance policies set by individual instructors.

Course Load

For most students, a typical academic course requires two hours of outside preparation for each hour spent in class. For example: a 15 semester-credit course load represents a commitment of 45 hours per week—consisting of 15 hours in class and 30 hours of outside preparation.

The average full-time course load is 15 semester credits for each fall and spring session. During the summer session, the average full-time course load is 12 semester credits. Students registering for fewer than 12 credits are classified as part-time. You need permission from an advisor to enroll for more than 18 semester credits during an academic session.

Evaluation and Grading

The evaluation of your achievement or mastery is based upon learning objectives. Achievement means successfully reaching a specified level of knowledge or understanding. Mastery means successfully reaching a level of competency in a skill.

Your final course grades are assigned at the end of each session for classes taken during that session. If you need an earlier grade report, contact the instructor before the end of the course and request an "early release of a grade" letter. This letter is unofficial. The official grade report will be mailed from Admissions approximately two weeks after the last day of a session.

Primary Grading Symbols:

Grade	Description
A	Distinguished achievement for superior work
B	Better than acceptable achievement
C	Acceptable achievement for advancement in the same or related studies
D	Less than acceptable achievement for advancement in the same or related studies (<i>Credit may not transfer</i>)
F	Failed to achieve or master the learning objectives of the course

Additional Grading Symbols:

Grade	Description
AU	Audit. If you want to take a course without earning semester credit, you can register to audit that course. You must pay tuition and fees for the course and declare your intention to audit no later than the courses tuition refund date. Once you have registered to audit a course, you cannot change your registration from auditing to earning semester credit for the course. The college will not award semester credit for any audited course.
W	Withdrawal. Through Admissions, you have officially withdrawn from the course or the college by the approved date and time.
CR	Credit. You have achieved the learning objectives for the course with a grade of C (or better). The instructor for that course evaluates your achievement on a credit/no-credit basis. The CR symbol is limited to specific courses designated by certain disciplines of study.
NC	No-credit. You have not achieved the learning objectives for the course with a minimum grade of C. The instructor for that course evaluates your achievement on a credit/no-credit basis. The NC symbol is limited to specific courses designated by certain disciplines of study.
I	Incomplete. If you are not able to complete the learning objectives before the end of a course because of verifiable extenuating circumstances, the instructor can assign an Incomplete grade at his or her discretion. Before you can be eligible to receive an I, you must have completed a minimum of two-thirds of the course work with a grade of C (or better) by the withdrawal date (see W). Before the end of the course, you are responsible for making arrangements with the instructor for the preparation of an Incomplete Grade Contract. During the next consecutive academic session (excluding summer), you must complete the remaining course work needed to change the I to a letter grade and initiate the grade change process with the instructor. If you do not complete the course work by the established dead line date, the instructor will change the I into the letter grade stipulated in the contract.
SP	Satisfactory Progress. Under the college's continuous enrollment policy, certain courses have been designated open-entry. You are eligible to receive an SP only if you are enrolled in an open-entry course. By the end of the academic session, you must have completed course work (prorated by your registration date) with a grade of C (or better) before you can be eligible for an SP. Also, you can request an SP based on verifiable extenuating circumstances. Before the end of the academic session, you are responsible for making arrangements with the instructor for the preparation of an SP Grade Contract. During the next consecutive academic session (excluding summer), you must complete the remaining course work needed to change the SP to a letter grade and initiate the grade change process with the instructor. If you do not complete the course work by the established dead line date, the instructor will change the SP into an F.

Grade Point Average (GPA) Calculation

When computing your cumulative grade point average (GPA) various numerical values are assigned and used. Those that appear on your transcript are:

AHRS (attempted credit hours)

Once you register for a course, you are attempting the semester credit hours assigned to that course. Attempted hours are not used to calculate your GPA.

EHRS (earned credit hours)

If you earn a final course grade of A, B, C, D, or CR, you will receive earned semester credit hours for that course. Earned hours are not used to calculate your GPA.

QHRS (quality credit hours)

If you earn a final course grade of A, B, C, D, or F, you will receive quality semester credit hours for that course. Quality hours are used to calculate your GPA.

QPTS (quality points)

The main grading symbols, A through F, are given points: A=4, B=3, C=2, D=1, and F=0. The points assigned to the letter grade multiplied by the quality credit hours received for the course gives a numerical value called quality points. These points are used to compute your cumulative grade point average (GPA). Grading symbols: W, I, CR, NC, SP, and AU do not have points and are not used when computing your GPA.

GPA (grade point average)

Your grade point average is the numerical value found by dividing the total number of quality points (QPTS) by the total number of quality semester credit hours (QHRS). The GPA's highest possible numerical value is 4.000.

For example:

Prefix No.	Grade/Points	AHRS	EHRS	QHRS	QPTS
ART 131	B 3	3	3	3	9(3X3)
BIO 227	W -	3	0	0	0
MAT 201	A 4	5	5	5	20(4X5)
MAT 201 Lab	CR -	1	1	0	0
PHI 111	C 2	3	3	3	6(2X3)
PSY 116	F 0	<u>1</u>	<u>0</u>	<u>1</u>	0(0X1)
	Totals	16	12	12	35

$$\text{GPA} = \frac{\text{Total QPTS}}{\text{Total QHRS}} = \frac{35}{12} = 2.917$$

Phi Theta Kappa

Red Rocks sponsors a chapter of Phi Theta Kappa, the national student honorary organization. Club members offer tutoring programs, raise money for charity and conduct educational forums. To be eligible for membership, you must have completed at least 15 semester credits of study, have a minimum GPA of 3.5 and a faculty recommendation. Information: **(303) 914-6406**.

Honors Program

Recognizing that a grade point average is not the only measure of intellectual ability, the faculty at Red Rocks Community College are dedicated to supporting an Honors Program that helps cultivate a student's entire intellectual potential. Honors Program students have the opportunity to join fellow students and faculty in pursuit of educational innovation, interdisciplinary exploration, self-discovery, and academic excellence. The Honors Program at Red Rocks offers a variety of educational opportunities designed to assist students in:

- Preparing for upper division course work
- Developing informed appraisals of their professional interests and abilities
- Cultivating personal and professional skills
- Exploring topics meaningful to their educational and career goals

Honors Courses

Honors students are provided the option of participating in one or more of the following courses:

- General Education Core Courses with an Honors Component
- Special Honors Topics
- Interdisciplinary Honors Seminar

Eligibility

Participation in the Honors Program is a two (2) step process.

Step 1

Students must meet one of the following requirements:

- Completion of 12 semester-credit hours at
- RRCC with a minimum GPA of 3.0
- SAT combined score of 1100
- ACT composite score of 24
- Phi Theta Kappa membership
- Faculty recommendation

Step 2

- Students must submit a written request to an Honors Program faculty member to participate in the program.
- An Honors faculty member and/or the Honors Committee will interview students.

For more information about the Honors Program at Red Rocks Community College, interested students should contact Dr. Marjorie Berman at **(303) 914-6259** or Dr. Dave Brown at **(303) 914-6378**.

Deans' Honors List

The Deans' Honors List is designed to recognize those students who have achieved an outstanding level of academic success at Red Rocks Community College. The Deans' Honors List designation is recorded on the student's official academic transcript and the student receives recognition during the College's annual graduation ceremony. To receive this academic honor, a student must be graduating and have:

- Earned, for all semester credits, a cumulative GPA of 3.85 (or higher);
- Taken at least 15 semester credits of course work through Red Rocks Community College; and
- Completed the requirements for an Associate of Arts, Associate of Science, Associate of General Studies, or Associate of Applied Science degree; or have completed a certificate program containing at least thirty semester credits.

Repeating Courses

You can submit a written request to Admissions to repeat a course for which you have earned a substandard grade. If the request is approved, you will be allowed to repeat the course only once. Both grades will appear on your permanent academic transcript. The most recent grade of the repeated course will be used to calculate your cumulative grade point average.

Academic Second Chance

All course work taken at Red Rocks is reflected on your permanent transcript; however, you can initiate a petition to remove from your cumulative grade point average (G.P.A.) substandard grades you earned in course work no longer appropriate to your present educational goals. Before submitting the required written request, you must wait at least two years after the course work was completed and must take a minimum of 15 semester credits of new course work at Red Rocks with a cumulative G.P.A. of 2.0 or higher. You can petition only once to remove from your cumulative G.P.A. the substandard grades. Once Admissions has removed these grades from your cumulative G.P.A., they cannot be reinstated. The substandard grades, however, will still appear on your permanent academic transcript. For further information contact the Advising Center at **(303) 914-6255**.

Programs of **Study**

Associate of Arts

Transfer Degree, University Parallel

The Associate of Arts degree (60 credits) is for students who want a traditional liberal arts education and who intend to transfer to four-year colleges and universities. It provides a basis of study in the areas of arts and humanities, communications and social sciences. An emphasis is available in:

Art (ART)
Business (BUS)
Economics (ECO)
English (ENG)
Foreign Languages (French, German and Spanish)
(FRE, GER, SPA)
History (HIS)
Humanities (HUM)
Multimedia Technology (MTC)
 Film Video Technology (FVT)
 Graphics and Animation Technology (GAT)
 Production and Design Technology (PDT)
Political Science (POS)
Psychology (PSY)
Sociology (SOC)
Speech Communications (SPE)
Theatre Arts (THE)

Associate of Science

Transfer Degree, University Parallel

The Associate of Science degree (60 credits) is for students who want an emphasis in science, mathematics or computer science and who intend to transfer to four-year colleges and universities. An emphasis is available in:

Biology (BIO) Mathematics (MAT)
Biotechnology (BIO) Physics (PHY)
Chemistry (CHE) Pre-Engineering
Computer Science (CSC) Pre-Nursing
Geology (GEY)

Associate of General Studies

The Associate of General Studies degree is for students who want to complete a broad program of both career and transfer courses. Various courses within this degree may be accepted in a four-year baccalaureate program; however, each course will be considered on an individual basis. An emphasis is available in the following areas:

Aviation Technology (AVI)*
Criminal Justice (CRJ)
Early Childhood Education* (ECE)
 Director Certificate*
 Group Leader Qualification Certificate**
Multimedia Technology (MTC)
 Film Video Technology (FVT)
 Graphics and Animation Technology (GAT)
 Production and Design Technology (PDT)
Precision Joining Technology (PJT)

Associate of Applied Science

The Associate of Applied Science degree is awarded to students who are preparing for entry-level employment or upgrading in a specific occupation. This degree is not intended for transfer. Various courses within this degree may be accepted in a four-year baccalaureate program; however, each course will be considered on an individual basis. The following programs of study are available:

Auto Collision Technology* (ACT) (*Warren Ctr. only*)

Automotive Technology* (AUM)

Business Programs

Accounting* (ACC) with emphasis in:

Accounting Paraprofessional

Accounting Technician

Business Technology (BTE) with emphasis in:

Administrative Assistant

Legal Secretary*

Medical Office*

Word/Information Processing*

Financial Services (FIS) with emphasis in:

Banking

Brokerage Operations*

Management (MAN) with emphasis in:

Commercial Food Service Management*

Human Resource Management*

Management and Supervision*

Pre-Hospital Emergency Medical Services

Management (MAN)

Production Management (PRM)

Public Administration* (PUA)

Purchasing Management

Marketing (MAR) with emphasis in:

Hospitality, Tourism and Travel* (HTT)

International Trade and Commerce* (ITC)

Marketing* (MAR)

Real Estate* (REE)

Computer Information Systems (CIS) with emphasis in:

Microcomputer Applications Specialist*

Microcomputer Programming Specialist

Programming*

Construction Technology (CON) with emphasis in:

Air Conditioning/Heating/Refrigeration* (AHR)

Carpentry* (CAR)

Electricity Industrial/Commercial* (EIC)

Fine Woodworking* (FIW)

Plumbing* (PLU)

Solar Construction Technology*

Apprentice-Related Technology:

Carpentry (ARC)*

Drywall Applicator*

Electrical*/Ironworker*/Plumbing and

Pipefitter*/Sheetmetal*

* Certificate is also available. ** RRCC Certificate is also available.

Not all course work is available each session.

Criminal Justice (CRJ) with emphasis in:

Corrections*

Juvenile

Law Enforcement

Victim Assistance*

Drafting Technology with emphasis in:

Drafting for Civil/Mapping* (DRM)

Drafting for Construction/Architecture* (DRC)

Drafting for Industry* (DRI)

Electronic Digital/Computer Technology* (EDT)

Emergency Management and Planning* (EMP)

Energy Technologies (ENT) with emphasis in:

Active Solar Energy Systems*

Conservation and Energy Management

Technology*

Passive Solar Energy Systems and Construction*

Renewable Energy Electrical Power Generation*

Environmental and Safety Technology* (EST)

Fire Science Technology (FST)

Medical Assisting*

Multimedia Technology (MTC)

Film Video Technology (FVT)

Graphics and Animation Technology (GAT)

Production and Design Technology (PDT)

Occupational Safety Technology* (OSH)

(*in cooperation with Trinidad State Junior College*)

Paramedic Technician (EMS)

Park Ranger Technology* (PAR)

Radiologic Technology (RAD)

Transportation and Logistics Management (TLM)

(*Approval Pending*)

Water Quality Management Technology (WQM)

Welding Fabrication Technology* (WFT)

(*Warren Center only*)

* Certificate is also available. ** RRCC Certificate is also available.

Not all course work is available each session.

Certificates

The following programs lead to a certificate only:

Advanced Construction Electrician

Advanced Maintenance Electrician

Aviation Technology (AVI)

Basic Law Enforcement Training Academy

Basic Plumbing and Heating Maintenance

Blueprint Reading for Architectural Construction

Building Code

Clerical Data Entry

Early Childhood Education Center Director (ECE)

Early Childhood Education Group Leader (ECE)

Investigations

LAN Administrator

Nurse Aide/Home Health Aide

Nursing Continuing Ed/RN Refresher (CEN)

Small Business Management (SBM)

Transfer Agreements With Four-Year Colleges and Universities

Transferring to Four-year Colleges and Universities

Red Rocks has established transfer agreements with the following institutions:

Adams State College
Colorado School of Mines
Colorado State University
Fort Lewis College
Mesa State College
Metropolitan State College of Denver
Regis University
University of Colorado at Boulder
University of Colorado at Colorado Springs
University of Colorado at Denver
 College of Business and Administration
 College of Engineering and Applied Science
 College of Liberal Arts and Sciences
University of Colorado Health Sciences Center
University of Denver
University of Northern Colorado
University of Southern Colorado
Western State College

These agreements specify how Red Rocks courses transfer and identifies their equivalents at these institutions. They are contained in the Red Rocks Transfer Guide which provides written guarantees of transferability of credit when a prescribed curriculum is satisfactorily completed.

The Red Rocks Transfer Center offers the following services to help simplify the process:

- Review of general education requirements, courses and degree programs
- Provision of catalogs and Transfer Guide information
- Assistance with application and admissions procedures
- Assistance with financial aid planning
- Coordination of campus visits by college representatives

Information: (303) 914-6255

General Education Core Transfer Program

Core Transfer courses (*see list at right*) are guaranteed to transfer to Colorado's public four-year colleges. You may choose to complete only the core curriculum, or to complete core courses as part of an Associate of Arts or Associate of Science degree. You should confirm the transferability of all courses, as well as specific departmental or program requirements. Information: (303) 914-6255

ASSOCIATE OF ARTS DEGREE Core Requirements (*See course list.*)

English/Speech: 9 semester hours required
(*All three courses from Group 1.*)

Mathematics: 3 semester hours from Group 2.

Science: 4 semester hours from Group 3.

Social and Behavioral Sciences: 9 semester hours from 2 different disciplines in Group 4.

Humanities: 9 semester hours from 2 different disciplines in Group 5. (*All foreign languages are considered a single discipline.*)

TOTAL CORE REQUIREMENTS: 34 semester hours

ADDITIONAL REQUIREMENT:

An additional 26 semester hours of approved transferable electives.*

TOTAL HOURS REQUIRED: 60 semester hours

ASSOCIATE OF SCIENCE DEGREE Core Requirements (*See course list.*)

English/Speech: 9 semester hours required
(*All three courses from Group 1.*)

Mathematics: 4 semester hours from Group 2.

(*Note: MAT 135 does not fulfill the core requirements.*)

Science: 8 semester hours from Group 3.

(*Note: BIO 105, CHE 101, and CHE 102 do not fulfill the core requirements.*)

Social and Behavioral Sciences: 6 semester hours from 2 different disciplines in Group 4.

Humanities: 6 semester hours from 1 or 2 different disciplines in Group 5.

TOTAL CORE REQUIREMENTS: 33 semester hours

ADDITIONAL REQUIREMENTS:

1. An additional 18 semester hours of transferable elective credits chosen from AST, BIO, CHE, CIS, CSC, GEY, MAT and PHY. You must select these courses only from the approved course list for the Associate of Arts and Associate of Science degrees.*
2. An additional 9 semester hours of approved transferable elective credit.*

TOTAL HOURS REQUIRED: 60 semester hours

* You must select courses from the "Approved Elective Credit Course List" for the AA and AS degrees found on page 20.

Core Courses

1. Communications		Credits
ENG 121	English Composition I	3
ENG 122	English Composition II	3
SPE 115	Principles of Speech Communication	3
2. Mathematics		
MAT 121	College Algebra	4
MAT 125	Survey of Calculus	4
** MAT 135	Introduction to Statistics	3
MAT 201	Calculus I	.5
MAT 202	Calculus II	.5
3. Science		
AST 101	Astronomy I	4
AST 102	Astronomy II	4
** BIO 105	Science of Biology	4
BIO 111	General College Biology I	5
BIO 112	General College Biology II	5
** CHE 101	Introduction to Chemistry I	5
** CHE 102	Introduction to Chemistry II	5
CHE 111	General College Chemistry I/Lab	5
CHE 112	General College Chemistry I/Lab	5
GEY 111	Physical Geology	4
GEY 121	Historical Geology	4
** PHY 105	Conceptual Physics	4
PHY 111	Physics: Algebra-Based I	5
PHY 112	Physics: Algebra-Based II	.5
PHY 211	Physics: Calculus-Based I	.5
PHY 212	Physics: Calculus-Based II	5
4. Social and Behavioral Sciences		
ANT 101	Cultural Anthropology.	3
ANT 111	Physical Anthropology.	3
ECO 201	Principles of Macroeconomics	3
ECO 202	Principles of Microeconomics	3
GEO 105	World Regional Geography	3
HIS 101	Western Civilization I	3
HIS 102	Western Civilization II	3
HIS 201	U.S. History I	3
HIS 202	U.S. History II	3
POS 105	Introduction to Political Science	3
POS 111	American Government	3
PSY 101	General Psychology I	3
PSY 102	General Psychology II	3
SOC 101	Introduction to Sociology I	3
SOC 102	Introduction to Sociology II	3
5. Humanities		
ART 110	Art Appreciation	3
ART 111	Art History	3
ART 112	Art History	3
*** 111	Foreign Language I	5
*** 112	Foreign Language II	5
*** 211	Foreign Language III	3
*** 212	Foreign Language IV	3
HUM 121	Survey of Humanities I	3
HUM 122	Survey of Humanities II	3
HUM 123	Survey of Humanities III	3
LIT 115	Introduction to Literature	3
LIT 201	Masterpieces of Literature I	3
LIT 202	Masterpieces of Literature II	3
MUS 120	Music Appreciation	3
MUS 121	Introduction to Music History I	3
MUS 122	Introduction to Music History II	3
PHI 111	Introduction to Philosophy	3
PHI 112	Ethics	3
PHI 113	Logic	3
THE 211	Development of Theatre I	3
THE 212	Development of Theatre II	3

** *Fulfills core requirements for Associate of Arts degree but not for Associate of Science degree.*

*** *All foreign languages are considered a single discipline.*

Approved Elective Credit Course List for the Associate of Arts or Associate of Science Degrees

These courses are generally transferable to four-year colleges or universities in Colorado. All courses will count toward the AA and AS degrees. However, transferability depends upon the four-year institution. Additional courses may be transferable to one or more of the four-year colleges or universities in Colorado. For specific information, please consult an advisor.

ACC	Accounting	121 and 122
ANT	Anthropology	All courses
ART	Art	All courses
AST	Astronomy	All courses
BIO	Biology	All courses
BUS	Business	115, 216, 217 & 221 (<i>See AA degree, Emphasis in Business</i>)
CHE	Chemistry	All courses
CIS	Computer Information Systems	115, 116, 118, 160, 161, 165, 240, 241, 260, 261, 265 & 266
CSC	Computer Science	148, 160, 161, 230, 231, 240 & 241
ECE	Early Childhood Education	101, 115, 117 & 120
ECO	Economics	All courses except 119
ENG	English	121, 122, 131, 221, 222, 227 & 232
ENV	Environmental Science	101
FRE	French	All courses except 101 & 102
GEO	Geography	All courses
GEY	Geology	All courses
GER	German	All courses except 101 & 102
HIS	History	All courses
HUM	Humanities	All courses
LIT	Literature	All courses
MAT	Mathematics	121, 122, 124, 125, 135, 201, 202, 203, 255 & 265
MUS	Music	All courses
NUR	Nursing	200
PHI	Philosophy	All courses
PHE	Physical Education	All courses (<i>A maximum of 3 credits will count toward the degree.</i>)
PHY	Physics	All courses
POS	Political Science	All courses
PSY	Psychology	101, 102, 115, 205, 217, 226, 227, 235, 238, 239, 249 & 250
SOC	Sociology	101, 102, 205, 215, 218, 226 & 237
SPA	Spanish	All courses except 101, 102 & 225
SPE	Speech	All courses
THE	Theatre	All courses

For certain areas the following may be taken for AA and AS elective credit and are intended to transfer:

ACC	Accounting	121 & 122
BUS	Business	115, 216, 217 & 221
CIS	Computer Information Systems	115, 116, 175, 260, 261 & 277

Graduation Requirements

Catalog Requirements

Students will graduate under the catalog requirements listed for the year that they were first enrolled. If students interrupt attendance for two consecutive semesters (excluding summer term) or more and then return, the catalog of the readmission semester is the governing document. Students may choose to use the catalog that is in effect the semester they graduate. Students should be sure to obtain and keep a copy of their governing catalog.

Degrees Awarded

Red Rocks Community College awards the following degrees:

Associate of Arts (*transferrable*)

Associate of Science (*transferrable*)

Associate of General Studies (*pre-professional transfer or occupational*)

Associate of Applied Science (*occupational*)

Certificate Requirements

1. Students must complete the specified subject matter or course requirements of an approved vocational/technical program.
2. Students must earn a cumulative grade point average of 2.0 (*C average*). Some programs, as stated in the current catalog, may require a student to earn at least a C in specific course work. Students should check with their instructional divisions as well as their advisors for information regarding the minimum grade point average requirement that is necessary for graduation.
3. Students must complete at least 50 percent of their course work at Red Rocks to be awarded a certificate.
4. Students must submit an "Application for Graduation" form during the term in which they intend to graduate, according to the deadline published in the *Class Planning Schedule* for that session.

Recognition of Achievement

The college offers many courses, conferences, workshops and seminars for upgrading job skills as well as for personal enrichment. Successful completion of courses of this type may result in the granting of a "Recognition of Achievement" which may be requested from the appropriate instructional vice president.

Courses That Are Not Applicable Toward Any Degree

Courses numbered 093 and 095 and the following courses will not count toward any degree:

EDU	090	1-3 Credits	Seminar in Peer Tutoring
EDU	092	1 Credit	Portfolio Development Workshop
ENG	031	1-3 Credits	Learning Unlimited English Review
ENH	094	1-3 Credits	Sound and Spelling
ESL	011	1 Credit	Pronunciation
ESL	090	3 Credits	ESL Spelling/Vocabulary
ESL	091	3 Credits	ESL Communication
ESL	092	3 Credits	ESL Reading
ESL	093	3 Credits	ESL Grammar
ESL	094	3 Credits	ESL Writing
ESL	095	5 Credits	ESL Intensive
ESL	096	3 Credits	ESL Communication for Business
ESL	098	3 Credits	TOEFL Preparation
GED	011	1-3 Credits	GED Preparation
MAT	031	1-3 Credits	Learning Unlimited Math Review
MAT	056*	3 Credits	Introduction to Mathematics: Pre-Algebra
STS	060	1-3 Credits	Learning Success Strategies

Reading (REA) courses will not count toward any degree.

**This course may apply toward selected AAS degree programs.*

Other Graduation Policies

1. No more than 6 semester credits of independent study course work may be applied toward an associate degree program.
2. There is no limit on special topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program area. Students taking special topics courses should consult with their advisors regarding how these credits will apply toward a degree.
3. The college reserves the right to substitute or delete course work based on the current curriculum. Students are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
4. Students applying for an additional degree from Red Rocks Community College must complete an additional 15 credits at Red Rocks Community College and the requirements for the degree.
5. With the approval of a faculty advisor or dean cooperative education credit may count toward a degree.

Petitioning for Waivers and/or Program Substitutions

Students who, due to extenuating circumstances, wish to petition for a waiver and/or substitution of program requirements must complete a "Waiver/Program Substitution Request" form. The form is available in Instructional Services. Students should complete the request, have it approved by their advisors and the appropriate instructional vice president and submit it to Admissions where it will be kept on file.

**ASSOCIATE OF ARTS (AA) DEGREE
1996-97 STUDENT EVALUATION WORKSHEET**

STUDENT _____ EMPHASIS IN _____

SOC. SEC. NO. _____ ADVISOR _____ DATE _____

Core Curriculum Requirements (34 Semester Credits)

COMMUNICATION (9 CREDIT HOURS)

Complete all three courses.

	SEM. MRS.
ENG 121 English Composition I 3 hrs.	[1]
ENG 122 English Composition II 3 hrs.	[1]
SPE 115 Principles of Speech Comm. 3 hrs.	[]

ARTS and HUMANITIES (9-13 CREDIT HOURS)

Select three courses from two or three disciplines.

	SEM. MRS.
ART 110 Art Appreciation 3 hrs.	[]
ART 111 Art History I 3 hrs.	[]
ART 112 Art History II 3 hrs.	[]
111 Foreign Language I 5 hrs.	[]
112 Foreign Language II 5 hrs.	[]
211 Foreign Language III 3 hrs.	[]
212 Foreign Language IV 3 hrs.	[]
HUM 121 Survey of Humanities I 3 hrs.	[]
HUM 122 Survey of Humanities II 3 hrs.	[]
HUM 123 Survey of Humanities III 3 hrs.	[]
LIT 115 Introduction to Literature 3 hrs.	[]
LIT 201 Masterpieces of Lit I 3 hrs.	[]
LIT 202 Masterpieces of Lit II 3 hrs.	[]
Mus 120 Music Appreciation 3 hrs.	[]
Mus 121 Intro to Music History I 3 hrs.	[]
Mus 122 Intro to Music History II 3 hrs.	[]
PHI 111 Introduction to Philosophy 3 hrs.	[]
PHI 112 Ethics 3 hrs.	[]
PHI 113 Logic 3 hrs.	[]
THE 211 Development of Theatre I 3 hrs.	[]
THE 212 Development of Theatre II 3 hrs.	[]

MATHEMATICS (3-5 Credit Hours)

Select one course.

	SEM. MRS.
MAT 121 College Algebra 4 hrs.	[]
MAT 125 Survey of Calculus 4 hrs.	[]
NAT 135 Introduction to Statistics 3 hrs.	[]
MAT 201 Calculus I 5 hrs.	[]
MAT 202 Calculus II 5 hrs.	[]

SOCIAL AND BEHAVIORAL SCIENCES (9 CREDIT HOURS)

Select three courses from two or three disciplines.

	SEM. HRS.
ANT 101 Cultural Anthropology 3 hrs.	[]
ANT 111 Physical Anthropology 3 hrs.	[]
ECO 201 Prin. of Macroeconomics 3 hrs.	[]
ECO 202 Prin. of Macroeconomics 3 hrs.	[]
GEO 105 World Geography 3 hrs.	[]
HIS 101 Western Civilization I 3 hrs.	[]
HIS 102 Western Civilization II 3 hrs.	[]
HIS 201 U.S. History I 3 hrs.	[]
HIS 202 U.S. History II 3 hrs.	[]
POS 105 Intro. to Political Science 3 hrs.	[]
POS 111 American Government 3 hrs.	[]
PSY 101 General Psychology I 3 hrs.	[]
PSY 102 General Psychology II 3 hrs.	[]
SOC 101 Intro. to Sociology I 3 hrs.	[]
SOC 102 Intro. to Sociology II 3 hrs.	[]

SCIENCE (4-5 CREDIT HOURS)

Select one course.

	SEM. MRS.
AST 101 Astronomy I 4 hrs.	[]
AST 102 Astronomy II 4 hrs.	[]
BIO 105 Science of Biology 4 hrs.	[]
BIO 111 General Biology I 5 hrs.	[]
BIO 112 General Biology II 5 hrs.	[]
CHE 101 Intro. to Chemistry I 5 hrs.	[]
CHE 102 Intro. to Chemistry II 5 hrs.	[]
CHE 111 General Chemistry I 5 hrs.	[]
CHE 112 General Chemistry II 5 hrs.	[]
GEY 111 Physical Geology 4 hrs.	[]
GEY 121 Historical Geology 4 hrs.	[]
PHY 105 Conceptual Physics 4 hrs.	[]
PHY 111 Physics: Algebra-based I 5 hrs.	[]
PHY 112 Physics: Algebra-based II 5 hrs.	[]
PHY 211 Physics: Calculus-based I 5 hrs.	[]
PHY 212 Physics: Calculus-based II 5 hrs.	[]

Approved Electives (26 Semester Credits -- see next page)

Course Prefix & Number	SEM. HRS.
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]

Course Prefix & Number	SEM. HRS.
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]
_____	[]

Total Credits (60 Credits Required) _____

NOTE: See next page for "Other Degree Requirements," "Other Graduation Policies," "Catalog Requirements" and "Approved Elective Credit Course List" for the Associate of Arts Degree.

If you are planning to transfer to a four-year college or university you should consult an advisor and the Transfer Guide in the Career Resource Center upon beginning your degree program for assistance in planning your program of study.

Other (AA) Degree Requirements

1. A minimum of 60 semester credits is required for the Associate of Arts Degree. These must include 34 credits in Core transfer courses and 26 credits in the areas specified below in approved electives.
2. You must complete 26 semester elective credits, these must be college level transfer courses and may include no more than 3 credits in physical education (PHE) -- see approved electives below. Please see an advisor in your area of emphasis for specific course suggestions.

Credits earned above the minimum to satisfy a requirement may be applied to a different area. For example, if you take Introduction to Chemistry I (CHE 101 - five credits) to satisfy the science requirement in the Core curriculum, 4 of those 5 credits can be applied toward the Core requirement, and the remaining 1 credit applied as an elective credit.
3. You must earn a cumulative grade point average of 2.0 (C average).
4. If you are planning to transfer to a four year college or university you should consult an advisor for assistance in planning your program of study. (Advisors can be seen in the Career Resource Center at Red Rocks.)
5. If you are planning to transfer to a four-year college or university you should consult the Transfer Guide for GPA requirements of the receiving institution. (In Career Resource Center.)
6. You must complete a minimum of 15 transferable semester credits at Red Rocks Community College.
7. You must file an Application for Graduation during the term in which you intend to graduate, according to the deadline published in the Schedule for that term. (Apply in Admissions office.)

Other Graduation Policies

8. No more than 6 semester credits of independent study course work may be applied toward an Associate Degree program.
9. There is no limit on special topics courses allowed to count toward a Degree. In individual cases, the limit will be determined by the program area. Students taking special topics courses should consult with their advisors regarding how these credits will apply toward a Degree.
10. The college reserves the right to substitute or delete course work based on the current curriculum. Students are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
11. Students applying for an additional Degree at Red Rocks Community College must complete an additional 15 credits at Red Rocks Community College and the requirements for the Degree.
12. With the approval of a faculty advisor or dean, Cooperative Education credit may count toward a degree.

Catalog Requirements

You will graduate under the catalog requirements listed for the year that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding sinner term) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Approved Elective Credit Course List for the Associate of Arts Degree

These courses transfer to one or more of the four-year colleges or universities in Colorado. All courses will count toward the AA Degree. However, transferability depends upon the four-year institution. Additional courses may be transferable to one or more of the four-year colleges or universities in Colorado. For specific information, please consult an advisor in the Career Resource Center.

Accounting	ACC 121 and 122	Humanities	HUM All courses
Anthropology	ANT All courses	Journalism	JOU All courses
Art	ART All courses	Literature	LIT All courses
Astronomy	AST All courses	Management	MAN 226
Biology	BIO All courses	Marketing	MAR 216
Business	BUS 115, 216, 217 and 226 (See AA Degree, emphasis in Business)	Mathematics	MAT 121, 122, 123, 124, 125, 135, 201, 202, 203, 255 and 265
Chemistry	CHE All courses	Music	MUS All courses
Computer Info. systems	CIS 115, 116, 118, 160, 161, 165, 240, 241 260, 261, 265, 266 and 277	Nursing	NUR 200
Computer Science	CSC 148, 160, 161, 230, 231, 240 and 241	Philosophy	PHI All courses
Early Childhood Education	ECE 101, 115, 117 and 120	Physical Educa.	PHE All courses A max of 3 credits applies toward the degree
Economics	ECO All courses except ECO 119	Physics	PHY All courses
English	ENG 121, 122, 131, 221, 222, 227, and 232	Political Science	POS All courses
Environmental Sc	ENV 101	Psychology	PSY 101, 102, 115, 205, 217, 226, 227, 235, 238, 239, 249 and 250
Foreign Language	FRE, GER, SPA All courses except 101, 102 and SPA 225	Sociology	SOC 101, 102, 205, 215, 218, 226 and 237
Geography	GEO All courses	Speech	SPE All courses
Geology	GEY All courses	Theatre	THE All courses
History	HIS All courses		

**ASSOCIATE OF SCIENCE (AS) DEGREE
1996-97 STUDENT EVALUATION WORKSHEET**

STUDENT _____ EMPHASIS IN _____

SOC. SEC. NO _____ ADVISOR _____ DATE _____

Core Curriculum Requirements(33 Semester Credits)

COMMUNICATION (9 CREDIT HOURS)

Complete all three courses.

	SEM. HRS.
ENG 121 English Composition I 3 hrs.	[]
ENG 122 English Composition II 3 hrs.	[]
SPE 115 Principles of Speech Comn. 3 hrs.	[]

ARTS and HUMANITIES (6-10 CREDIT HOURS)

Select two courses.

	SEM. HRS.
ART 110 Art Appreciation 3 hrs.	[]
ART 111 Art History II 3 hrs.	[]
ART 112 Art History I 3 hrs.	[]
111 Foreign Language I 5 hrs.	[]
112 Foreign Language II 5 hrs.	[]
211 Foreign Language III 3 hrs.	[]
212 Foreign Language IV 3 hrs.	[]
HUM 121 Survey of Humanities I 3 hrs.	[]
HUM 122 Survey of Humanities II 3 hrs.	[]
HUM 123 Survey of Humanities III 3 hrs.	[]
LIT 115 Introduction to Literature 3 hrs.	[]
LIT 201 Masterpieces of Lit I 3 hrs.	[]
LIT 202 Masterpieces of Lit II 3 hrs.	[]
MUS 120 Music Appreciation 3 hrs.	[]
MUS 121 Intro to Music History I 3 hrs.	[]
MUS 122 Intro to Music History II 3 hrs.	[]
PHI 111 Introduction to Philosophy 3 hrs.	[]
PHI 112 Ethics 3 hrs.	[]
PHI 113 Logic 3 hrs.	[]
THE 211 Development of Theatre I 3 hrs.	[]
THE 212 Development of Theatre II 3 hrs.	[]

MATHEMATICS (4-5 Credit Hours)

Select one course

	SEM. HRS.
MAT 121 College Algebra 4 hrs.	[]
MAT 125 Survey of Calculus 4 hrs.	[]
MAT 201 Calculus I 5 hrs.	[]
MAT 202 Calculus II 5 hrs.	[]

SOCIAL AND BEHAVIORAL SCIENCES (6 CREDIT HOURS)

Select two courses from two disciplines.

	SEM. HRS.
ANT 101 Cultural Anthropology 3 hrs.	[]
ANT 111 Physical Anthropology 3 hrs.	[]
ECO 201 Prin. of Macroeconomics 3 hrs.	[]
ECO 202 Prin. of Macroeconomics 3 hrs.	[]
GEO 105 World Geography 3 hrs.	[]
HIS 101 Western Civilization I 3 hrs.	[]
HIS 102 Western Civilization II 3 hrs.	[]
HIS 201 U.S. History I 3 hrs.	[]
HIS 202 U.S. History II 3 hrs.	[]
POS 105 Intro. to Political Science 3 hrs.	[]
POS 111 American Government 3 hrs.	[]
PSY 101 General Psychology I 3 hrs.	[]
PSY 102 General Psychology II 3 hrs.	[]
SOC 101 Intro. to Sociology I 3 hrs.	[]
SOC 102 Intro. to Sociology II 3 hrs.	[]

SCIENCE (8-10 CREDIT HOURS)

Select two courses.

	SEM. HRS.
AST 101 Astronomy I 4 hrs.	[]
AST 102 Astronomy II 4 hrs.	[]
610 111 General Biology I 5 hrs.	[]
610 112 General Biology II 5 hrs.	[]
CHE 111 General Chemistry I 5 hrs.	[]
CHE 112 General Chemistry II 5 hrs.	[]
GEY 111 Physical Geology 4 hrs.	[]
GEY 121 Historical Geology 4 hrs.	[]
PHY 111 Physics: Algebra-based I 5 hrs.	[]
PHY 112 Physics: Algebra-based II 5 hrs.	[]
PHY 211 Physics: Calculus-based I 5 hrs.	[]
PHY 212 Physics: Calculus-based II 5 hrs.	[]

Approved Electives (18 Semester Credits -- see next page). Only asterisk (*) electives (AST ,610, CHE, CSC, ENV, GEY, MAT and PHY) apply toward the AS Degree approved electives.

Course Prefix & Number	Course	SEM. HRS.	Course Prefix & Number	Course	SEM. HRS.
_____	_____	[]	_____	_____	[]
_____	_____	[]	_____	_____	[]
_____	_____	[]	_____	_____	[]
_____	_____	[]	_____	_____	[]

Electives (9 Semester Credits -- see next page)

Course Prefix & Number	Course	SEM. HRS.	Course Prefix & Number	Course	SEM. HRS.
_____	_____	[]	_____	_____	[]
_____	_____	[]	_____	_____	[]
_____	_____	[]	_____	_____	[]

Total Credits (60 Credits Required) _____

NOTE: See next page for "Other Degree Requirements," "Other Graduation Policies," "Catalog Requirements," "Approved Elective Credit Course List" and "Elective Credit Course List" for the Associate of Science Degree.

If you are planning to transfer to a four-year college or university you should consult an advisor and the Transfer Guide in the Career Resource Center upon beginning your degree program for assistance in planning your program of study.

You may use this form to track their progress toward the AS degree and to help you with scheduling of your classes. (See term schedule for selecting classes.)

Other AS Degree Requirements

1. A minimum of 60 semester credits is required for the Associate of Science Degree. These must include 33 credits in Core transfer courses, 18 approved elective credits in the (*) areas specified below and 9 elective credits from those listed below.
2. You must complete an additional 18 semester credits in any of the Science or asterisked (*) disciplines listed below. Please see an advisor in your area of emphasis for specific course suggestions.
3. You must complete an additional 9 semester credits of elective courses. These must be college level transfer courses and may include no more than 3 credits in physical education (PHE) -- see Approved Electives below.

Credits earned above the minimum to satisfy a requirement may be applied to a different area. For example, if you take German I and II ((GER 111 & 112) 5 credits each), to satisfy the humanities requirement in the Core Curriculum, 6 of those 10 credits can be applied toward the Core requirement, and the remaining 4 credits can be applied as elective credits. (Not approved electives.)
4. You must earn a cumulative grade point average of 2.0 (C average) at Red Rocks Community College.
5. If you are planning to transfer to a four year college or university you should consult an advisor for assistance in planning your program of study. (Advisors can be seen in the Career Resource Center at Red Rocks.)
6. If you are planning to transfer to a four-year college or university you should consult the Transfer Guide for GPA requirements of the receiving institution. (In Career Resource Center.)
7. You must complete a minimum of 15 transferable semester credits at Red Rocks Community College.
8. You must file an Application for Graduation during the term in which you intend to graduate, according to the deadline published in the Schedule for that term. (Apply in Admissions office.)

Other Graduation Policies

9. No more than 6 semester credits of independent study course work may be applied toward an Associate Degree program.
10. There is no limit on special topics courses allowed to count toward a Degree. In individual cases, the limit will be determined by the program area. Students taking special topics courses should consult with their advisors regarding how these credits will apply toward a Degree.
11. The college reserves the right to substitute or delete course work based on the current curriculum. Students are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
12. If you apply for more than one Degree at Red Rocks Community College you must complete an additional 15 credits at Red Rocks Community College and the requirements for the Degree.
13. With the approval of a faculty advisor or dean, Cooperative Education credits may count toward a degree.

Catalog Requirements

You will graduate under the catalog requirements listed for the year that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding sinner term) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Approved Elective Credit Course List (only courses with an (*) astrisk) & Elective Credit Course List (all courses) for the Associate of Science Degree

These courses transfer to one or more of the four-year colleges or diversities in Colorado. All courses will count toward the AS Degree. However, transferability depends upon the four-year institution. Additional courses may be transferable to one or more of the four-year colleges or universities in Colorado. For specific information, please consult an advisor in the Career Resource Center.

Accounting	ACC 121 and 122	Humanities	HUM All courses
Anthropology	ANT All courses	Journalism	JOU All courses
Art	ART All courses	Literature	LIT All courses
*Astronomy	AST All courses	Management	MAN 226
*Biology	BIO All courses	Marketing	MAR 216
Business	BUS 115, 216, 217 and 226 (See AA Degree, emphasis in Business)	*Mathematics	MAT 121, 122, 123, 124, 125, 135, 201, 202, 203, 255 and 265
*Chemistry	CHE All courses	Music	MUS All courses
Computer Info. systems	CIS 115, 116, 118, 160, 161, 165, 175, 240, 241 260, 261, 265, 266 and 277	Nursing	NUR 200
*Computer Science	CSC 148, 160, 161, 230, 231, 240 and 241	Philosophy	PHI All courses
Early Childhood Education	ECE 101, 115, 117 and 120	Physical Educa.	PHE All courses A max of 3 credits apply toward the degree
Economics	ECO All courses except ECO 119	*Physics	PHY All courses
English	ENG 121, 122, 131, 221, 222, 227, and 232	Political Science	POS All courses
*Environmental Sc	ENV 101	Psychology	PSY 101, 102, 115, 205, 217, 226, 227, 235, 238, 239, 249 and 250
Foreign Language	FRE, GER, SPA All courses except 101, 102 and SPA 225	Sociology	SOC 101, 102, 205, 215, 218, 226 and 237
Geography	GEO All courses	Speech	SPE All courses
*Geology	GEY All courses	Theatre	THE All courses
History	HIS All courses		

**ASSOCIATE OF GENERAL STUDIES - GENERALIST DEGREE (AGS-G)
1996-97 STUDENT EVALUATION WORKSHEET**

STUDENT _____ EMPHASIS IN _____

SOC. SEC. NO _____ ADVISOR _____ DATE _____

Core Course Requirements(34 Semester Credits)

COMMUNICATION (9 CREDIT HOURS)

Complete all three courses.

	SEM. HRS.
ENG 121 English Composition I 3 hrs.	[]
ENG 122 English Composition II 3 hrs.	[]
SPE 115 Principles of Speech Comm. 3 hrs.	[]

ARTS and HUMANITIES (9-13 CREDIT HOURS)

Select three courses from two or three disciplines.

	SEM. HRS.
ART 110 Art Appreciation 3 hrs.	[]
ART 111 Art History I 3 hrs.	[]
ART 112 Art History II 3 hrs.	[]
111 Foreign Language I 5 hrs.	[]
112 Foreign Language II 5 hrs.	[]
211 Foreign Language III 3 hrs.	[]
212 Foreign Language IV 3 hrs.	[]
HUM 121 Survey of Humanities I 3 hrs.	[]
HUM 122 Survey of Humanities II 3 hrs.	[]
HUM 123 Survey of Humanities III 3 hrs.	[]
LIT 115 Introduction to Literature 3 hrs.	[]
LIT 201 Masterpieces of Lit I 3 hrs.	[]
LIT 202 Masterpieces of Lit II 3 hrs.	[]
MUS 120 Music Appreciation 3 hrs.	[]
MUS 121 Intro to Music History I 3 hrs.	[]
MUS 122 Intro to Music History II 3 hrs.	[]
PHI 111 Introduction to Philosophy 3 hrs.	[]
PHI 112 Ethics 3 hrs.	[]
PHI 113 Logic 3 hrs.	[]
THE 211 Development of Theatre I 3 hrs.	[]
THE 212 Development of Theatre II 3 hrs.	[]

MATHEMATICS (3-5 Credit Hours)

Select one course.

	SEM. HRS.
MAT 121 College Algebra 4 hrs.	[]
MAT 125 Survey of Calculus 4 hrs.	[]
MAT 135 Introduction to Statistics 3 hrs.	[]
MAT 201 Calculus I 5 hrs.	[]
MAT 202 Calculus II 5 hrs.	[1]

SOCIAL AND BEHAVIORAL SCIENCES (9 CREDIT HOURS)

Select three courses from two or three disciplines.

	SEM. HRS.
ANT 101 Cultural Anthropology 3 hrs.	[]
ANT 111 Physical Anthropology 3 hrs.	[]
ECO 201 Prin. of Macroeconomics 3 hrs.	[]
ECO 202 Prin. of Macroeconomics 3 hrs.	[]
GEO 105 World Geography 3 hrs.	[]
HIS 101 Western Civilization I 3 hrs.	[]
HIS 102 Western Civilization II 3 hrs.	[]
HIS 201 U.S. History I 3 hrs.	[]
HIS 202 U.S. History II 3 hrs.	[]
POS 105 Intro. to Political Science 3 hrs.	[]
POS 111 American Government 3 hrs.	[]
PSY 101 General Psychology I 3 hrs.	[]
PSY 102 General Psychology II 3 hrs.	[]
SOS 101 Intro. to Sociology I 3 hrs.	[]
SOC 102 Intro. to Sociology II 3 hrs.	[]

SCIENCE (4-5 CREDIT HOURS) Select one course.

	SEM. HRS.
AST 101 Astronomy I 4 hrs.	[]
AST 102 Astronomy II 4 hrs.	[]
BIO 105 Science of Biology 4 hrs.	[]
BIO 111 General Biology I 5 hrs.	[]
BIO 112 General Biology II 5 hrs.	[]
CHE 101 Intro. to Chemistry I 5 hrs.	[]
CHE 102 Intro. to Chemistry II 5 hrs.	[]
CHE 111 General Chemistry I 5 hrs.	[]
CHE 112 General Chemistry II 5 hrs.	[]
GEY 111 Physical Geology 4 hrs.	[]
GEY 121 Historical Geology 4 hrs.	[]
PHY 105 Conceptual Physics 4 hrs.	[]
PHY 111 Physics: Algebra-based I 5 hrs.	[]
PHY 112 Physics: Algebra-based II 5 hrs.	[]
PHY 211 Physics: Calculus-based I 5 hrs.	[]
PHY 212 Physics: Calculus-based II 5 hrs.	[]

**Electives transfer and/or career courses
(26 Credits -- see next page for transfer courses) (See an advisor for
career course information.)**

Course Prefix & Number	SEM. HRS.	Course Prefix & Number	SEM. HRS.
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]

Total Credits (60 Credits Required) _____

The AGS-G degree is available for students who want to complete a broad program of both transfer and/or career courses without the constraints of specialization. The AGS-G core course requirements transfer to and fully meet the lower division general education requirements of all public baccalaureate colleges and universities in Colorado. Career courses within this degree may be accepted in a four-year baccalaureate program. However each course will be considered on an individual basis. Information concerning transfer to Colorado universities or colleges is available from the Career Resource Center, the Assessment Center and academic advisors at Red Rocks Community College.

NOTE: See next page for "Other Degree Requirements," "Other Graduation Policies," "Catalog Requirements" and "Approved Elective Credit Course List" for the Associate of General Studies-General Degree.

If you are planning to transfer to a four-year college or university you should consult an advisor and the Transfer Guide in the Career Resource Center upon beginning your degree program for assistance in planning your program of study.

Other AGS-G Degree Requirements

1. A minimum of 60 semester credits is required for the (AGS-G) Degree. These must include 34 credits of Core transfer courses and 26 credits in the areas specified below in approved electives or career courses (see your advisor.)
2. You must complete 26 semester elective credits, these must be college level transfer courses anti/or career courses and may include no more than 3 credits unphysical education (PHE) -- see approved electives below- Please see an advisor in your area of emphasis for specific course suggestions.

Credits earned above the minimum to satisfy a requirement may be applied to a different area. For example, if you take Introduction to Chemistry I (CHE 101 - five credits) to satisfy the science requirement in the Core curriculum, 4 of those 5 credits can be applied toward the Core requirement, and the remaining 1 credit applied as an elective.
3. You must earn a cumulative grade point average of 2.0 (C average) at Red Rocks Community College.
4. If you are planning to transfer to a four year college or university you should consult an advisor for assistance in planning-your program of study. (Advisors can be seen in the Career Resource Center at Red Rocks.)
5. If you are planning to transfer to a four-year college or university you should consult the Transfer Guide for GPA requirements of the receiving institution. (In Career Resource Center.)
6. You must complete a minimum of 15 transferable semester credits at Red Rocks Community College.
7. You must file an Application for Graduation during the term in which you intend to graduate, according to the deadline published in the Schedule for that term. (Apply in Admissions office.)
8. Any course whose number begins with 0 in any prefix will not meet requirements for the AGS-G Degree. English and mathematics courses numbered before the core general education courses will not meet requirements for the AGS-G.

Other Graduation Policies

9. No more than 6 semester credits of independent study course work may be applied toward an Associate Degree program.
10. There is no limit on special topics courses allowed to count toward a Degree. In individual cases, the limit will be determined by the program area. Students taking special topics courses should consult with their advisors regarding how these credits will apply toward a Degree.
11. The college reserves the right to substitute or delete course work based on the current curriculum. Students are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
12. Students applying for an additional Degree at Red Rocks Community College must complete an additional 15 credits at Red Rocks Community College and the requirements for the Degree.
13. With advisors approval, Cooperative Education/Internship credit may count toward a degree.

Catalog Requirements

You will graduate under the catalog requirements listed for the year that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding sinner term) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of year governing catalog.

Approved Elective Credit Course List for the Associate of General Studies - General Degree

These courses transfer to one or more of the four-year colleges or universities in Colorado. All courses will count toward the AGS-G Degree. However, transferability depends upon the four-year institution. Additional courses may be transferable to one or more of the four-year colleges or universities in Colorado. For specific information, please consult an advisor in the Career Resource Center.

Accounting	ACC 121 and 122	Humanities	HUM All courses
Anthropology	ANT All courses	Journalism	JOU All courses
Art	ART All courses	Literature	LIT All courses
Astronomy	AST All courses	Management	MAN 226
Biology	BIO All courses	Marketing	MAR 216
Business	BUS 115, 216, 217 and 226 (See AA Degree, emphasis in Business)	Mathematics	MAT 121, 122, 123, 124, 125, 135, 201, 202, 203, 255 and 265
Chemistry	CHE All courses	Music	MUS All courses
Computer Info. systems	CIS 115, 116, 118, 160, 161, 165, 240, 241 260, 261, 265, 266 and 277	Nursing	NUR 200
Computer Science	CSC 148, 160, 161, 230, 231, 240 and 241	Philosophy	PHI All courses
Early Childhood Education	ECE 101, 115, 117 and 120	Physical Educa.	PHE All courses A max of 3 credits applies toward the degree
Economics	ECO All courses except ECO 119	Physics	PHY All courses
English	ENG 121, 122, 131, 221, 222, 227, and 232	Political Science	POS All courses
Environmental Sc	ENV 101	Psychology	PSY 101, 102, 115, 205, 217, 226, 227, 235, 238, 239, 249 and 250
Foreign Language	FRE, GER, SPA All courses except 101, 102 and SPA 225	Sociology	SOC 101, 102, 205, 215, 218, 226 and 237
Geography	GEO All courses	Speech	SPE All courses
Geology	GEY All courses	Theatre	THE All courses
History	HIS All courses		

**ASSOCIATE OF APPLIED SCIENCE (AAS) DEGREE
1996-97 STUDENT EVALUATION WORKSHEET**

STUDENT _____ EMPHASIS IN _____

SOC. SEC. NO _____ ADVISOR _____ DATE _____

The Associate of Applied Science degree prepare students for the following: (a) entry-level employment in a given occupation and/or (b) upgrading/stabilizing employment. This degree is not intended for transfer to a baccalaureate degree program; however, some of the courses may be applied toward a bachelor's degree at some institutions. Please contact an academic advisor in the Career Resource Center at Red Rocks Community College for further information.

Degree Requirements

Specific Program Requirements: (a minimum of 60 credits required)	SEM. HRS.	General Education Requirements:	SEM. HRS.
_____	[]	Communications (COM, ENG, JOU, SPE)	3 Credits
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	Mathematics (MAT 100 and above)	3 Credits
_____	[]	(some programs accept MAT 056, see program requirements in catalog.)	
_____	[]	_____	[1
_____	[]	_____	[1
_____	[]	Credit from any two of the following three areas.	6 credits
_____	[]	(1) Arts and Humanities (ART, FRE, GER, HUM, LIT MUS, PHI, SPA and THE)	
_____	[]	(2) Science (AST, BIO, CHE, GEY and PHY)	
_____	[]	(3) Social Science (ANT, ECO GEO, HIS, POS, PSY and SOC)	
_____	[]	NOTE: Individual departments may specify particular courses for these general education requirements	
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	Electives from any of the above subjects	3 credits
_____	[]	_____	[]
_____	[]	_____	[]
_____	[]	_____	[]

Total Specific Program Credits (45 required) _____ Total General Education Credits (15 required) _____

Total Credits (minimum 60 required) _____

* NOTE: Most AAS degree programs require more than 60 credits. See catalog and/or an advisor in your specific program. Please mark all courses currently in progress which are required for graduation this semester.

Other (AAS) Degree Requirements

1. A minimum of 60 semester credits is required for the Associate of Applied Science Degree. These must include 45 credits in specific program courses and 15 credits in general education courses.
 2. You must earn a cumulative grade point average of 2.0 (C average).
 4. If you are planning to transfer to a four year college or university you should consult an advisor for assistance in planning your program of study. (Advisors can be seen in the Career Resource Center at Red Rocks.)
 5. If you are planning to transfer to a four-year college or university you should consult the Transfer Guide for GPA requirements of the receiving institution. (In Career Resource Center.)
 6. You must complete a minimum of 15 transferable semester credits at Red Rocks Community College.
 7. You must file an Application for Graduation during the term in which you intend to graduate, according to the deadline published in the Schedule for that term. (Apply in Admissions office.)
-

Other Graduation Policies

8. No more than 6 semester credits of independent study course work may be applied toward an Associate Degree program.
 9. There is no limit on special topics courses allowed to count toward a Degree. In individual cases, the limit will be determined by the program area. Students taking special topics courses should consult with their advisors regarding how these credits will apply toward a Degree.
 10. The college reserves the right to substitute or delete course work based on the current curriculum. Students are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
 11. Students applying for an additional Degree at Red Rocks Community College must complete an additional 15 credits at Red Rocks Community College and the requirements for the Degree.
 12. With the approval of a faculty advisor or dean, Cooperative Education credit may count toward a degree.
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Catalog Requirements

You will graduate under the catalog requirements listed for the year that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer term) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Courses That Are Not Applicable Toward Any Degree

Courses numbered 093 and 095 and the following courses will not count toward any degree.

EDU 090	1-3 Credits	Seminar in Peer Tutoring
EDU 092	1 Credit	Portfolio Development Workshop
ENG 031	1-3 Credits	Learning Unlimited English Review
ENH 094	1-3 Credits	Sound and Spelling
ESL 011	1-3 Credits	Pronunciation
ESL 090	1-3 Credits	Basic ESL
ESL 091	1-3 Credits	Intermediate ESL
ESL 092	1-3 Credits	Advanced ESL
ESL 095	5 Credits	Learn English and Progress (LET)
GED 011	1-3 Credits	GED Preparation
MAT 031	1-3 Credits	Learning Unlimited Math Review
*MAT 056	3 Credits	Introduction to Mathematics: Pre-Algebra
STS 060	1-3 Credits	Learning Success Strategies

Reading (REA) courses will not count toward any degree.

* This course may apply toward selected AAS degree programs.

Instructional Programs

Accounting

Bookkeeping Clerk Certificate: 15 Credits
Accounting Clerk Certificate: 32 Credits
Degree: Associate of Applied Science

The college offers two accounting certificates as well as an AAS degree in accounting. Students who plan to transfer to a baccalaureate institution should consider the AA degree with a business emphasis. You should consult with an accounting faculty advisor early in your career at Red Rocks to explore all educational options.

Degree Option 1 Accounting Paraprofessional Emphasis

The program will prepare you to work as an accounting paraprofessional or accounting assistant.

Required Major Courses			Credits
ACC	121	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
ACC	137	Electronic Spreadsheets (Required Lab)	4
ACC	146	Individual Income Tax	5
ACC	211	Intermediate Accounting I	5
ACC	226	Cost Accounting I	4
			26

Required Business-Related Courses			
BTE	100*	Touch Keyboarding (Required Lab)	1½-4
and			
BTE	108*	Ten Key by Touch (Required Lab)	
or			
Elective with approval of faculty advisor			
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communication and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
			16½-19

* See faculty advisor.

Electives (Select at least 9 credits with a minimum of six credits having ACC prefixes.):

Note: Students planning to transfer should see an accounting faculty advisor.

ACC	101*	Fundamentals of Accounting I	3
ACC	136	Computerized Accounting	4
ACC	138	Payroll and Sales Tax	3
ACC	151	Operating Your Bookkeeping Business	1
ACC	161	Understanding Financial Statements	3
ACC	190	Financial Investigations	3
ACC	212	Intermediate Accounting II	5
ACC	216	Governmental Accounting	3
ACC	227	Cost Accounting II	3
ACC	246	Business Taxation	3
ACC	241	Oil and Gas Accounting	3
ACC	297	Cooperative Education (maximum of 3 credits)	3
ACC	299	Independent Study	1-3
BUS	110	Mathematics of Business/Personal Finance	3
CIS	XXX	Approved CIS electives	3
ECO	XXX	Approved ECO electives	3
MAN	XXX	Approved MAN electives	3
			9

* May be allowed as an elective if taken prior to ACC 121. Consult a faculty advisor.

General Education Requirements

COM	115	The Job Search Process	1
COM	125	Communication in the Workplace	3
ECO	201	Principles of Macroeconomics	3
ENG	100	Composition Fundamentals	
or			
ENG	121	English Composition I	3
MAT	100	Introductory Algebra or above	3

Credit from any one of the following two areas: 3-5
Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)
Science (AST, BIO, CHE, GEY, PHY) 16-18

Total Required Credits (minimum) 67½-68

Total Required Contact Hours (minimum) 1020

Note: Students must earn a minimum of C in all courses having an ACC prefix.

Degree Option 2 Accounting Technician Emphasis

Upon successful completion of this program the student should be able to perform bookkeeping and general office duties in a small office or to begin a career path as an accounting technician in a large, departmentalized organization.

Required Major Courses			Credits
ACC	101*	Fundamentals of Accounting I	3
ACC	102	Fundamentals of Accounting II	3
ACC	121*	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
ACC	136	Computerized Accounting	4
ACC	137	Electronic Spreadsheets (Required Lab)	4
ACC	138	Payroll and Sales Tax	3
ACC	XXX	Electives	<u>5-6</u>
			30-31

Required Business-Related Courses

BTE	100*	Touch Keyboarding (Required Lab)	1½-4
and			
BTE	108*	Ten Key by Touch (Required Lab)	
or			
Elective with approval of faculty advisor			
BTE	151	Word Processing I/WordPerfect (Required Lab)	4
BTE	161	Filing and Records Management	2
BUS	115	Introduction to Business	
or			
BUS	216	Legal Environment of Business	3-4
CIS	118	Microcomputer Applications (Required Lab)	<u>5</u>
			15½-19

General Education Requirements

COM	115	The Job Search Process	1
COM	125	Communication in the Workplace	3
ECO	201	Principles of Economics	3
ENG	100	Composition Fundamentals	
or			
ENG	121	English Composition I	3
MAT	100	Introductory Algebra or above	3

Credit from any one of the following two areas: 3-5

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY) 16-18

Total Required Credits (minimum) 61½-68

Total Required Contact Hours (minimum) 960

Students must earn a minimum of C in all courses having an ACC prefix. See advisor.

* See Faculty Advisor.

Bookkeeping Clerk Certificate (1 semester)

Upon successful completion of this program the student should possess the skills and knowledge to perform entry-level bookkeeping tasks.

Required Major Courses			Credits
ACC	101*	Fundamentals of Accounting I	3
ACC	138	Payroll and Sales Tax	3
BTE	100**	Touch Keyboarding (Required Lab)	1½-4
and			
BTE	108**	Ten Key by Touch (Required Lab)	
or			
Elective with approval of faculty advisor			
BTE	161	Filing and Records Management	2
CIS	118	Microcomputer Applications (Required Lab)	5
COM	115	The Job Search Process	<u>1</u>
Total Required Credits			15½-18
Total Required Contact Hours (minimum)			240

* Student may start with ACC 121 with faculty permission. See advisor.

** See Advisor

Accounting Clerk Certificate (2 semesters)

Upon successful completion of this program the student should possess the skills and knowledge to perform a variety of functions in a manual or computerized accounting system. Examples include: Bookkeeper Assistant, Inventory Clerk, Payroll Clerk, Accounts Payable Clerk, Accounts Receivable Clerk and Fixed Asset Clerk.

Required Major Courses			Credits
ACC	101*	Fundamentals of Accounting I	3
ACC	102*	Fundamentals of Accounting II	3
ACC	136	Computerized Accounting (Required Lab)	4
ACC	137	Electronic Spreadsheets (Required Lab)	4
ACC	138	Payroll and Sales Tax	<u>3</u>
			17

Required Business-Related Courses

BTE	100*	Touch Keyboarding (Required Lab)	1½-4
and			
BTE	108*	Ten Key by Touch (Required Lab)	
or			
Elective with approval of faculty advisor			
BTE	161	Filing and Records Management	2
BUS	115	Introduction to Business	3
CIS	118	Microcomputer Applications (Required Lab)	<u>5</u>
			11½-14

Other Course Requirements

COM	115	The Job Search Process	1
COM	125	Communication in the Workplace	<u>3</u>
			4
Total Required Credits			32½-34
Total Required Contact Hours (minimum)			525

* Student may take the Principles of Accounting series in place of Fundamentals of Accounting with faculty permission. See advisor.

Air Conditioning, Heating and Refrigeration

(See *Construction Technology*.)

Art

Associate of Arts Degree With an Emphasis in Art

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in art. This program provides basic preparation leading to art-related careers as well as to the teaching of art.

Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
ART	111	Art History I (Core)	3
ART	112	Art History II (Core)	3
ART	121	Drawing I	3
ART	122	Drawing II	3
ART	131	Design I	3
ART	132	Design II	3
ART	211	Painting I	3
ART	224	Sculpture I	3

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

Humanities (any course from the following) 3
 Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212

Mathematics (any course from the following) 3
 MAT 121, 125, 135, 201, 202

Science (any course from the following) 4
 AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212

Social and Behavioral Sciences (courses from two different disciplines) 9
 ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

Electives 8
 Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits 60

Auto Collision Technology

Certificates: Five (NATEF) areas

Degree: Associate of Applied Science (AAS)

This is a National Certified Auto Collision Repair program with the primary purpose of preparing students for careers in the auto collision industry. Students can also achieve the necessary credits to obtain an associate degree. A minimum of 37 ACT credits, 9 credits from Applied Mechanical Technology required courses, 15 general education credits and completion of one or more of the (NATEF) certificate areas of instruction are required for the AAS degree. Some of the courses may transfer to a bachelor degree in Automotive Management.

AAS Degree Required Courses			Credits
ACT	120	GMAW (Mig) Welding	3
ACT	140	Outer Body Panel Replacement and Adjustment—Repair	3
ACT	160	Structural Analysis	3
ACT	164	Unibody Measurement	3
ACT	168	Anchoring, Pulling and Stress Relieving	3
ACT	170	Surface Preparation	5
ACT	174	Paint Mixing, Matching and Applying	5
ACT	178	Finish Defects, Causes and Cures	3
ACT	180	Plastic and Fiber Glass Parts Repair/Adhesives	3
ACT	184	Plastic Parts Repair/Welding	3
ACT	190	Automotive Damages Estimation	3
			37

AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	3
			9

ACT	200	Apprenticeship (<i>variable credit</i>)	
ACT	297	Cooperative Education (<i>variable credit</i>)	
ACT	299	Independent Study (<i>variable credit</i>)	

General Education Requirements

English/Speech (COM, ENG, SPE) (*any course level*) 3
Mathematics (100 or above) 3

Credit from any two of the following three areas: 9
Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY)
Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC) 15

Total Required Credits 61
Total Required Contact Hours 1372½

Non-Structural Analysis and Damage Repair Certificate

			Credits
ACT	120	GMAW (Mig) Welding	3
ACT	140	Outer Body Panel Replacement and Adjustment—Repair	3
ACT	145	Glass and Hardware	3-6
ACT	200	Apprenticeship (variable credit)	
AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	<u>3</u>
			21-24

Check with the instructor/advisor for prerequisites.

Mechanical and Electrical Components Certificate

			Credits
ACT	200	Apprenticeship (variable credit)	3-6
ACT	297	Cooperative Education (variable credit)	3-6
ACT	299	Independent Study (variable credit)	3-6
AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	<u>3</u>
			18-27

Check with the instructor/advisor for prerequisites.

Structural Analysis and Damage Repair Certificate

			Credits
ACT	120	GMAW (Mig) Welding	3
ACT	160	Structural Analysis	3
ACT	164	Unibody Measurement	3
ACT	168	Anchoring, Pulling and Stress Relieving	3
ACT	200	Apprenticeship (variable credit)	
AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	<u>3</u>
			21

Check with the instructor/advisor for prerequisites.

Painting and Refinishing Certificates

			Credits
ACT	170	Surface Preparation	5
ACT	174	Paint Mixing, Matching and Applying	5
ACT	178	Finish Defects, Causes and Cures	3
ACT	200	Apprenticeship (variable credit)	
AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	<u>3</u>
			22

Check with the instructor/advisor for prerequisites.

Plastics and Adhesives Certificate

			Credits
ACT	180	Plastic and Fiber Glass Parts Repair/Adhesives	3
ACT	184	Plastic Parts Repair/Welding	3
ACT	200	Apprenticeship (variable credit)	
AMT	100	Safety	3
AMT	105	Blueprints/Diagrams/Schematics	3
AMT	106	Basic Electricity/Electronics	<u>3</u>
			15

Check with the instructor/advisor for prerequisites.

Automation Systems and Robotics

(Currently Inactive)

Certificate: 64 Credits

This is a comprehensive program that includes electronics, fluid power and robotics courses designed to prepare students for job entry positions, as maintenance and repair technicians in industries utilizing flexible automation. Students are provided hands-on training with work cells, which include robot arms, conveyer systems, vision systems and programmable controllers.

This is an advanced course of study, which requires completion of the EDT 200 level classes or their equivalent in another program or in work experience. *(In all cases prior approval by the instructor is required.)*

			Credits
EDT	210	Computer Hardware Architecture	7
EDT	220	Computer Troubleshooting Techniques	7
EDT	230	Microprocessors Systems	7
EDT	240	Peripheral Systems	7
ASR	203	Servos, Amplifiers, Motors Control and Applications	4
ASR	210	Robotics and Process Control	7
ASR	220	Robotics and Automation Systems	7
ASR	230	Sensors, Vision and Systems Interfacing	7
ASR	240	Automation Systems Design and Applications	7
HPT	105	Introduction to Hydraulics	<u>4</u>
		Total Required Credits	64
		Total Required Contact Hours	1100

The college anticipates that application will be made to offer the Associate of Applied Science degree in the near future.

Automotive Technology

Certificates: 4, 8, 12, 16 Credits
Degree: Associate of Applied Science

The Automotive Technology Program is currently in transition and will be offered at Warren Technical Center in the future. This program provides students with job entry skills for the automotive trade and upgrading for those in the field who need to acquire more skill.

Demonstrated mastery of skills is required. The program is open-entry and open-exit. Therefore, students may complete some of the courses, enter the work force, then return at any time to complete the program for a certificate or degree or to upgrade specific skills.

Required Major Courses			Credits
AUM	100	Principles of Engine Operation, Safety and Electrical Systems	4
AUM	106	Charging and Starting Systems	4
AUM	107	Fuel Systems	4
AUM	110	Electronic Testing and Emission Controls	4
AUM	114	Steering and Suspension	4
AUM	115	Drum Brake Systems	4
AUM	116	Disc Brake Systems	4
AUM	205	Clutches and Manual Transmission	4
AUM	206	Drive Lines and Differentials	4
AUM	207	Automatic Transmission, Theory and Maintenance	4
AUM	208	Automatic Transmission Rebuild	4
AUM	215	Engine Operation, Diagnosis, Disassembly and Measurement	6
AUM	216	Engine Recondition and Assembly	6
AUM	217	Air Conditioning, Theory, Service and Safety	4
			60

General Education Requirements

<i>English/Speech</i> (COM, ENG, SPE)	3
<i>Mathematics</i> (056 or above)	3
Credit from any two of the following three areas:	9
<i>Humanities</i> (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)	
<i>Science</i> (AST, BIO, CHE, GEY, PHY)	
<i>Social and Behavioral Sciences</i> (ANT, ECO, GEO, HIS, POS, PSY, SOC)	
	15

Total Required Credits	75
Total Required Contact Hours	1245

AUM 297 Cooperative Education (variable credit) and COE 296 Cooperative Education Seminar (1 credit) or AUM 299 Independent Study (variable credit) may be used as an elective.

Tune-Up and Emission Controls

Fifteen-Week Certificate

			Credits
AUM	100	Principles of Engine Operation, Safety and Electrical Systems	4
AUM	106	Charging and Starting Systems	4
AUM	107	Fuel Systems	4
AUM	110	Electronic Testing and Emission Control	4

Check with advisor for prerequisites.

Drum and Disc Brakes

Six-Week Certificate

			Credits
AUM	115	Drum Brake Systems	4
AUM	116	Disc Brake Systems	4

Check with advisor for prerequisites.

Automatic Transmissions

Nine-Week Certificate

			Credits
AUM	207	Automatic Transmission, Theory and Maintenance	4
AUM	208	Automatic Transmission Rebuild	4

Wheel Alignment and Suspensions

Six-Week Certificate

			Credits
AUM	117	Wheel Alignment	4
AUM	118	Wheel Balance and Suspension	4

Check with advisor for prerequisites.

Air Conditioning

Three-Week Certificate

			Credits
AUM	217	Air Conditioning Theory, Service and Safety	4

Clutches and Manual Transmissions

Three-Week Certificate

			Credits
AUM	205	Clutches and Manual Transmissions	4

Drive Lines and Differentials

Three-Week Certificate

			Credits
AUM	206	Drive Lines and Differentials	4

Engine Rebuilding

Nine-Week Certificate

			Credits
AUM	215	Engine Operations, Diagnosis, Disassembly and Measurement	6
AUM	216	Engine Recondition and Assembly	6

Automotive Electronics Engine Systems Operations

			Credits
AUM	201	Automotive Electronic Engine Systems Operations	8

Automotive Electronic Engine Systems, Services and Repair

			Credits
AUM	202	Automotive Electronic Engine Systems, Services and Repair	8

Alternative Fuel Systems Variable Credits

Biology

Associate of Science Degree with an Emphasis in Biology

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in biology. Students are urged to consult with a faculty advisor before beginning any program of study.

			Credits
BIO	111	General College Biology I (Core)	5
BIO	112	General College Biology II (Core)	5
BIO	205	Microbiology	4
BIO	225	General Zoology	5
BIO	226	General Botany	5
CHE	111	General College Chemistry I (Core)	5
CHE	112	General College Chemistry II (Core)	5
MAT	122	College Trigonometry	3
MAT	125	Survey of Calculus (Core)	4
PHY	111	Physics: Algebra-based I (Core)	5

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Humanities</i> (any two courses from the following)			6
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212			

Social and Behavioral Sciences (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

6

Electives

9

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits	62
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Biotechnology

Associate of Science Degree with an Emphasis in Biotechnology

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a specialization in biotechnology.

Students are urged to consult with a faculty advisor before beginning any program of study.

			Credits
BIO	111	General College Biology I (Core)	5
BIO	201	Human Anatomy and Physiology I	4
BIO	203	Human Anatomy and Physiology II	4
BIO	205	Microbiology	4
CHE	111	General College Chemistry I (Core)	5
CHE	112	General College Chemistry II (Core)	5
MAT	121	College Algebra (Core)	4
BIO	211	Cellular Biology	4
BIO	212	Molecular Biology	4
			39

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3
			9

<i>Humanities</i> (any two courses from the following)			6
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212			

<i>Social and Behavioral Sciences</i> (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102			6
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Electives

Electives must be selected from college-level transfer courses. See a faculty advisor for courses appropriate to the area of emphasis. No more than three credits in physical education may be counted.

Total Credits	63
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Business

Associate of Arts With An Emphasis in Business

The study of business examines the strategies and functional activities that private enterprises undertake to achieve the profit motive. The student can major in the following fields at the baccalaureate degree level: accounting, finance, information systems, management and marketing. Graduates in these disciplines go on to exciting and challenging professional careers in the business world.

The following courses are appropriate for students who plan to transfer to a four-year college or university. Students are urged to consult with a member of the business or accounting faculty before beginning any program of study.

Required Major courses			Credits
ACC	121	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communications and Report Writing	3
BUS	226	Business Statistics	3
CIS	118	Microcomputer Applications (Required Lab)	5
MAN	226	Principles of Management	*3
MAR	216	Principles of Marketing	*3
			32

Note: Colorado community colleges have a Business Transfer Agreement with the following four-year colleges in the state: Adams State College, Colorado State University, Fort Lewis College, Mesa State College, Metropolitan State College of Denver, University of Colorado at Boulder, University of Colorado at Denver, University of Southern Colorado and Western State College. Please see a faculty advisor or the Transfer Center for more specific information.

Note: Some four-year colleges or universities may require a comprehensive exam before accepting credits for certain business courses. Consult a faculty advisor for additional information.

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3
			9

**Humanities (courses from two different disciplines) 9

ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212

* *Principles of Marketing and Principles of Management will be accepted at four-year institutions provided that the community college student completes the prerequisites (i.e. two accounting courses, one economics course, and business statistics) and has sophomore standing before enrolling in either Principles of Marketing or Principles of Management.*

Mathematics

MAT	121	College Algebra	**4
or			
MAT	124	Finite Mathematics	
MAT	125	Survey of Calculus	4

Science** (Any course from the following) 4-5

AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212

Social and Behavioral Sciences

ECO	201	Principles of Macroeconomics	3
ECO	202	Principles of Microeconomics	3

** Any course from the following: _____ 3

ANT 101, 111; GEO 105, HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

Total Credits **62-67**

** See faculty advisor.

Business Technology

Degree: Associate of Applied Science
Certificates: Variable Credits

These program options (*area of emphasis*) are designed to prepare students for entry-level positions and/or advancement in businesses, governmental agencies and other institutions which employ persons in office occupations. An individual aspiring for advanced work placement should expect to have several years of work experience in addition to the degree.

NOTE: Students are advised to consult a BTE faculty advisor before registering for any BTE program of study.

Required Major Courses for All Areas of Emphasis Except Medical Office			Credits
BTE	102	Keyboarding Applications <i>(minimum entry speed is 30 wpm)</i>	*4
BTE	103	Keyboarding Skillbuilding I <i>(minimum entry speed is 20 wpm)</i>	+*4
BTE	125	Procedures for Workplace 2000 <i>(fall/summer)</i>	3
BTE	161	Filing and Records Management <i>(fall/spring)</i>	2
BTE	162	Electronic Filing I	*4
BTE	220	Machine Transcription	*4
BUS	115	Introduction to Business	3
BUS	120	Business Mathematics by Machines	4
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (IBM)	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
CIS	137	Desktop Publishing, WP 6.1 WIN <i>(fall/spring)</i>	*4
TOTAL			44

* Includes lab credit

General Education Requirements (for all areas of emphasis)

<i>English/Speech</i> (SPE 115, ENG 121 or above)	3
<i>Mathematics</i> (MAT 100 or above)	3

Credits from any two of the following three areas: 9

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Electives

Electives from any of the above: Please check with BTE advisor on selection of General Education courses. 15

Area of Emphasis: Administrative Assistant

Students must complete the required major courses plus the following courses and meet general education requirements.

Required Major Courses	44
General Education Requirements	15

Area of Emphasis Requirements

ACC	101	Fundamentals of Accounting I	3
MAN	116	Principles of Supervision	3
MAN	120	Office Management	3

Electives (Select 1 course from the following program areas with business technology faculty advisor approval): 3
 Business Technology (BTE)

Computer Information Systems (CIS)
 Management (MAN)

Total Required Credits 71

Total Required Contact Hours 1065

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

Area of Emphasis: Legal Secretary

Students must complete the required major courses in addition to the following area of emphasis courses and meet the general education requirements.

Required Major Courses	44
General Education Requirement	15

Area of Emphasis Requirements

BTE	104	Skillbuilding II	†*4
BTE	208	Legal Terminology	3
BTE	209	Legal Research	3
BTE	297	Cooperative Education/Internship	3

Total Required Credits 72

Total Required Contact Hours 1080

* Includes lab credit

† Course may be waived with validated speed of 65 wpm for 5 minutes with 5 errors or less.

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

Area of Emphasis: Medical Office

Students must complete the required major courses plus the following courses and meet the general education requirements.

			Credits
General Education Requirements			15
Required Major Courses			
BTE	102	Keyboarding Applications <i>(minimum entry speed is 30 wpm)</i>	*4
BTE	115	Data Entry I	*4
BTE	140	Medical Office I	4
BTE	141	Medical Office II	4
BTE	142	Medical Transcription	*2.67
BTE	206	Coding/Health Insurance Methods and Claims	4
BTE	297	Cooperative Education/Internship	3
CIS	118	Microcomputer Applications	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
HEO	100	Medical Terminology	3
HEO	104	Anatomy for Health Occupations	4
Required Business-Related Courses			
BUS	217	Business Communications and Report Writing	3
MAN	116	Principles of Supervision	
		or	
MAN	120	Office Management	3
Required Credits			65.67
Total Required Contact Hours			985

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit

Area of Emphasis: Word/Information Processing

Students must complete the required major courses plus the following courses and meet the general education requirements.

			Credits
Required Major Courses			15
General Education Requirements			15
BTE	104	Keyboarding Skillbuilding II	+*4
BTE	135	Office Correspondence <i>(fall/spring)</i>	3
MAN	116	Principles of Supervision	3
Electives <i>(Select 1 course from the following program areas with BTE faculty advisor approval):</i>			3
		Accounting (ACC)	
		Business Technology (BTE)	
		Computer Information Systems (CIS)	
		Management (MAN)	
Total Required Credits			72
Total Required Contact Hours			1080

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit.

† Course may be waived with validated speed of 65 wpm for 5 minutes with 5 errors or less.

Business Technology—Certificate Programs

- Clerical/Data Entry
- Legal Secretarial
- Medical Office
- Word Processing

Note: These certificate programs are designed for students who are preparing for entry-level positions.

Clerical/Data Entry Certificate

			Credits
Required Major Courses			
ACC	101	Fundamentals of Accounting I	3
BTE	102	Keyboarding Applications <i>(minimum entry speed is 30 wpm)</i>	*4
BTE	103	Keyboarding Skillbuilding I <i>(minimum entry speed is 20 wpm)</i>	*4
BTE	115	Data Entry I <i>(fall)</i>	*4
BTE	125	Procedures for Workplace 2000 <i>(spring/summer)</i>	3
BTE	135	Office Correspondence <i>(fall/spring)</i>	3
BTE	161	Filing and Records Management <i>(fall/spring)</i>	2
BTE	162	Electronic Filing I	*4
BUS	120	Business Mathematics by Machines	4
CIS	118	Microcomputer Applications (IBM)	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
Total Required Credits			40
Total Required Contact Hours			600

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit.

Legal Secretary Certificate

			Credits
Required Major Courses			
BTE	102	Keyboarding Applications <i>(minimum entry speed is 30 wpm)</i>	*4
BTE	103	Keyboarding Skillbuilding I <i>(minimum entry speed is 20 wpm)</i>	+*4
BTE	125	Procedures for Workplace 2000	3
BTE	135	Office Correspondence	3
BTE	161	Filing and Records Management	2
BTE	162	Electronic Filing	*4
BTE	208	Legal Terminology	3
BTE	209	Legal Research	3
BTE	297	Cooperative Education/Internship	3
BUS	120	Business Mathematics by Machines	4
CIS	118	Microcomputer Applications (IBM)	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
CIS	137	Desktop Publishing, WP 6.1 WIN <i>(fall/spring)</i>	*4
Total Required Credits			50
Total Required Contact Hours			750

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit

Medical Office Certificate

Required Major Courses			Credits
BTE	102	Keyboarding Applications <i>(minimum entry speed 30 wpm)</i>	*4
BTE	115	Data Entry I	*4
BTE	135	Office Correspondence	3
BTE	140	Medical Office I	4
BTE	141	Medical Office II	4
BTE	142	Medical Transcription	*2.67
BTE	206	Coding/Health Insurance Methods and Claims	4
BTE	297	Cooperative Education/Internship	3
CIS	118	Microcomputer Applications (IBM)	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
HEO	100	Medical Terminology	3
HEO	104	Anatomy for Health Occupations	4
Total Required Credits			44.67
Total Required Contact Hours			670

Note: See medical faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit.

Word Processing Certificate

Required Major Courses			Credits
BTE	102	Keyboarding Applications	*4
BTE	103	Keyboarding Skillbuilding I	+*4
BTE	104	Skillbuilding II	+*4
BTE	125	Procedures for Workplace 2000	3
BTE	135	Office Correspondence	3
BTE	161	Filing and Records Management	2
BTE	162	Electronic Filing	*4
BTE	220	Machine Transcription	*4
BUS	120	Business Mathematics by Machines	4
CIS	118	Microcomputer Applications (IBM)	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
CIS	137	Desktop Publishing, WP 6.1 WIN <i>(fall/spring)</i>	*4
Total Required Credits			45
Total Required Contact Hours			675

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE courses required for a certificate or degree.

* Includes lab credit

+ Course may be waived with validated speed of 65 wpm for 5 minutes with 5 errors or less

Carpentry

(See Construction Technology.)

Chemistry

Associate of Science Degree With an Emphasis in Chemistry

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in chemistry. Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
CHE	111	General College Chemistry I (Core)	5
CHE	112	General College Chemistry II (Core)	5
CHE	211	Organic Chemistry I	5
CHE	212	Organic Chemistry II	5
MAT	201	Calculus I (Core)	5
MAT	202	Calculus II (Core)	5
MAT	203	Calculus III	4
PHY	211	Physics: Calculus-based I (Core)	5
PHY	212	Physics: Calculus-based II (Core)	5

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

**Humanities* (any two courses from the following) 6
 ART 111, 112; Foreign Language 111, 112, 211, 212;
 HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121,
 122; PHI 111, 112, 113; THE 211, 212

Social and Behavioral Sciences (courses from two different disciplines) ANT 101, 111; ECO 201, 202;
 GEO 105; HIS 101, 102, 201, 202; POS 105, 111;
 PSY 101, 102; SOC 101, 102 6

Electives 3

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits **68**

* Students are encouraged to complete GER 111 and 112 to satisfy the Arts and Humanities requirement.

Communications

(See *Speech Communications*.)

Computer Information Systems

Certificates: Variable credits

Degree: Associate of Applied Science

The Computer Information Systems Associate of Applied Science degree program is designed to prepare the student for entry-level positions in three areas of emphasis: programming, microcomputer applications specialist and microcomputer programming specialist. There are also two-semester certificate programs in microcomputer specialist, LAN administrator and programming.

Required Courses for All Areas of Emphasis (Degree)

			Credits
ACC	121	Principles of Accounting I	4
CIS	115	Introduction to Computers (Required Lab)	5
CIS	116	Logic and Program Design	3
CIS	245	Database Management Systems (Required Lab)	4
CIS	276	Systems Analysis and Design	5
ENG	121	English Composition I	3
ENG	122	English Composition II	3
		or	
ENG	131	Technical Writing I	
MAT	121	College Algebra or higher	4
SPE	115	Principles of Speech Communication	3

Credit from two of the following three areas: 6

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Required Credits For All Areas of Emphasis 40

Specific Emphasis Area Recommendations

Take each of the following CHE, PHY & MAT courses:

CHE	111	General College Chemistry I (Core)	5
CHE	112	General College Chemistry II (Core)	5
PHY	211	Physics: Calculus-based I (Core)	5
PHY	212	Physics: Calculus-based II (Core)	5
MAT	201	Calculus I (Core)	5
MAT	202	Calculus II (Core)	5

Take two of the following CSC courses:

CSC	148	FORTTRAN Programming	4
CSC	160	Computer Science I	4
CSC	161	Computer Science II	4
CSC	230	C Language Programming	4
CSC	231	Advanced C Language Programming	4

Area of Emphasis: Microcomputer Applications Specialist

This area of emphasis is designed to prepare the student as an entry-level microcomputer specialist with an emphasis in applications.

			Credits
CIS	118	Microcomputer Applications (Required Lab) See Course Description section for alternative courses.	5
CIS	141	Intermediate Microcomputer Database (Required Lab)	1½
CIS	142	Advanced Microcomputer Database (Required Lab)	1½
CIS	151	Intermediate Electronic Spreadsheets (Required Lab)	1½
CIS	152	Advanced Electronic Spreadsheets (Required Lab)	1½
		or equivalent (CIS 145, CIS 155)	
CIS	111	Advanced Microcomputer Operating System (Required Lab)	1½
CIS	250	Local Area Networks (LAN)	2
CIS/CSC		One Programming Language (preferably C) (Required Lab)	4
CIS	137	Desktop Publishing (Required Lab)	4
CIS/CSC		Electives with advisor approval	6

**Credits for Microcomputer Applications Specialist
Area of Emphasis 27 ⅔**

Total Required Credits (minimum) 67 ⅔

Total Required Contact Hours (minimum) 1000

Area of Emphasis: Microcomputer Programming Specialist

This area of emphasis is designed to prepare the student as an entry-level microcomputer specialist with an emphasis in programming.

			Credits
CIS	118	Microcomputer Applications (Required Lab) See Course Description section for alternative courses.	5
CIS	141	Intermediate Microcomputer Database (Required Lab)	1½
CIS	142	Advanced Microcomputer Database (Required Lab) See advisor for equivalent or alternative courses.	1½
CSC	230	C Language Programming (Required Lab)	4
CSC	231	Advanced C Language Programming (Required Lab)	4
CIS/CSC		Second Programming Language (Required Lab)	4
CIS/CSC		Electives with advisor approval	6

**Credits for Microcomputer Programming Specialist
Area of Emphasis 25 ⅔**

Total Required Credits (minimum) 65 ⅔

Total Required Contact Hours (minimum) 985

Area of Emphasis: Multimedia Software Developer

This area of emphasis is designed to prepare the student for an entry-level position as a Multimedia Software Developer. Upon completion of this program, the student will have completed *Authorized Macromedia Training Courses* conducted by authorized trainers, specifically CIS 181 (Director) and CIS 182 (Authorware). The student should be prepared to enter the multimedia software field as an entry-level developer.

			Credits
CIS	138	Introduction to MS Windows	1 1/3
CIS	180	Introduction to Multimedia	3
CIS	181	Multimedia Software Interactive Development (<i>Director</i>)	4
CIS	182	Multimedia Software Authorship (<i>Authorware</i>)	4
CIS	183	Multimedia Software Design/Development	4
		or	
CIS	230	C Language Programming	4
		or	
CIS	173	Visual BASIC for Windows Programming	4
XXX		Other Course Approved by an advisor	4
Electives			12

Note: See an advisor for suggested electives.

Credits for Multimedia Developer Area of Emphasis	28 1/3
Total Required Credits (minimum)	69 1/3
Total Required Contact Hours (minimum)	1040

Area of Emphasis: Network Administrator

This area of emphasis is designed to prepare the student for an entry-level position as a LAN Administrator. The student will also have the option of completing advanced course work through the EDT department in order to obtain special certification in the work field.

			Credits
CIS	110	Introduction to Microcomputer Operating Systems	1 1/3
		and	
CIS	111	Advanced Microcomputer Operating Systems	1 1/3
		or	
EDT	240	Peripheral Systems and Software	7
CIS	125	Word Processing	4
CIS	145	Microcomputer Databases	4
CIS	150	Introduction Electronic Spreadsheets	2 2/3
CIS	151	Intermediate Electronic Spreadsheets	1 2/3
CIS	175	UNIX	4
CIS	250	Local Area Networks	2
		and	
CIS	251	Local Area Network Administration	4
		or	
CIS	260	NOVELL Certified Network Engineering—Part I	7
Electives			4-6

Suggested electives with CIS/EDT advisor approval: CIS 252, 253, 254, 176; EDT 260, 270, 280 and 285.

Credits for Network administrator Area of Emphasis	30 2/3
Total Required Credits (minimum)	70 2/3
Total Required Contact Hours (minimum)	500

Area of Emphasis: Programming

This area of emphasis is designed to prepare the student as an entry-level programmer. Upon completion of this program, the student will have completed a minimum of thirty programs ranging from simple business programs to the design and completion of a complex business system.

			Credits
CIS	277	Operating Systems and Job Control Language (<i>Required Lab</i>)	4
		or	
CIS	175	UNIX (<i>Required Lab</i>)	4
CIS	297	Cooperative Education	3-5
		or	
ACC	122*	Principles of Accounting II	3-5
CIS/CSC		In one programming language sequence (<i>Required Lab</i>)	8
CIS/CSC		Electives above CIS 155 with approval of advisor	9
		Labs may be required	3

* ACC 121 or equivalent is a prerequisite to ACC 122.

Credits for Programming Area of Emphasis	27-29
Total Required Credits (minimum)	67
Total Required Contact Hours (minimum)	1005

LAN Administrator Certificate

This program is designed to prepare the student for a career in Local Area Network administration or planning. Additional career opportunities exist in microcomputer applications support.

			Credits
CIS	110	Introduction to Microcomputer Operating Systems (<i>Required Lab</i>)	1 1/3
CIS	111	Advanced Microcomputer Operating Systems (<i>Required Lab</i>)	1 1/3
CIS	115	Introduction to Computers (<i>Required Lab</i>)	5
CIS	125	Word Processing (<i>Required Lab</i>)	4
CIS	145	Microcomputer Databases (<i>Required Lab</i>)	4
CIS	150	Introduction to Electronic Spreadsheets (<i>Required Lab</i>)	2 2/3
CIS	151	Intermediate Electronic Spreadsheets (<i>Required Lab</i>)	1 1/3
CIS	250	Local Area Networks	2
CIS	251	Local Area Network Administration (<i>Required Lab</i>)	4
CIS	252	Multi-Vender Networking	3
CIS	253	LAN Service and Support (<i>Required Lab</i>)	4
CIS	275	Telecommunications	3

Total Required Credits	35 2/3
Total Required Contact Hours	535

Microcomputer Specialist Certificate

This certificate program is designed to prepare the student for a career as a microcomputer specialist with an emphasis in applications.

			Credits
CIS	118	Microcomputer Applications (Required Lab) See Course Description section for alternative courses.	5
CIS	141	Intermediate Microcomputer Database (Required Lab)	1½
CIS	142	Advanced Microcomputer Database (Required Lab)	1½
CIS	151	Intermediate Electronic Spreadsheets (Required Lab)	1½
CIS	152	Advanced Electronic Spreadsheets (Required Lab) or equivalent (CIS 145, CIS 155)	1½
CIS	111	Advanced Microcomputer Operating Systems (Required Lab)	1½
CIS	250	Local Area Networks (LAN)	2
CIS/CSC		One Programming Language (preferably C) (Required Lab)	4
CIS	137	Desktop Publishing (Required Lab)	4
CIS	245	Database Management Systems (Required Lab)	4
CIS/CSC		Electives with advisor approval	6
Total Required Credits (minimum)			31½
Total Required Contact Hours (minimum)			475

Multimedia Software Specialist Certificate

This certificate is designed to prepare the student for a career as a Multimedia Specialist. Course work includes *Authorized Macromedia Training Courses* conducted by authorized trainers, specifically CIS 181 (Director) and CIS 182 (Authorware). Additional training may be obtained through the Multimedia Software Developer Degree.

			Credits
CIS	115	Introduction to Computers or	5
CIS	118	Microcomputer Applications	5
CIS	180	Introduction to Multimedia	3
CIS	181	Multimedia Software Interactive Development (Director)	4
CIS	182	Multimedia Software Authorship (Authorware)	4
Electives		(CIS electives must be above 155)	16
Total Required Credits (minimum)			32
Total Required Contact Hours (minimum)			480

Programming Certificate

This certificate is designed for the student who has a two-year or a four-year degree. Professional experience may be used in lieu of a degree with approval from the department.

			Credits
CIS	115	Introduction to Computers (Required Lab)	5
CIS	116	Logic and Program Design	3
CIS	277	Operating Systems and Job Control or	
CIS	175	UNIX	4
CIS	297	Cooperative Education or	
ACC	122*	Principles of Accounting II or	
ENG	131	Technical Writing I	3-5
CIS/CSC		In one programming language sequence	8
CIS/CSC		Electives above CIS 155 with advisor's approval Labs may be required.	6 2
Total Required Credits (minimum)			31-33
Total Required Contact Hours (minimum)			465-495

* ACC 121 or equivalent is a prerequisite to ACC 122.

Computer Science

Associate of Science Degree With an Emphasis in Computer Science

The completion of the following courses is for the student planning to transfer to a four-year college or university to complete a major in computer science. Students are urged to consult a faculty advisor before beginning any program.

			Credits
CSC	160	Computer Science I (Required Lab)	5
CSC	161	Computer Science II (Required Lab)	5
CSC	165	Discrete Structures	3
MAT	201	Calculus I (Core)	5
MAT	202	Calculus II (Core)	5
PHY	211	Physics: Calculus-based I* (Core)	5
PHY	212	Physics: Calculus-based II* (Core)	5

*Other natural science credits may be substituted for the AS degree. However, many colleges and universities offering a bachelor of science degree in Computer Science require PHY 211 and PHY 212. Please consult with a computer science faculty advisor.

Electives in Mathematics and Computer Science 6

All electives must be transferable. Students are encouraged to work with their computer science faculty advisor.

Core Curriculum Requirements

			Credits
<i>English/Speech</i>			
ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

Humanities (any two courses from the following) 6

ART 111, 112; Foreign Language 111, 112, 211, 212;
HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122;
PHI 111, 112, 113; THE 211, 212

Social and Behavioral Sciences (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102 6

Electives 3

Electives must be selected from college-level transfer courses. No more than 3 credits in PHE may be counted.

Total Credits 63

Construction Technology Cluster

(Consists of AHR, ARC, ARD, ARE, ARI, ARM, ARS, BRI, CAR, EIC, ENT, FIW AND PLU)

Degree: Associate of Applied Science in Construction Technology with Areas of Emphasis and Options in:

Air Conditioning Heating & Refrigeration

Degree	Certificate
<ul style="list-style-type: none"> • Advanced Heating • Air Conditioning • Refrigeration • Refrigeration, Heating & Air Conditioning • Residential Heating 	<ul style="list-style-type: none"> • Advanced Heating • Air Conditioning • Refrigeration • Refrigeration, Heating & Air Conditioning • Residential Heating

Carpentry

Degree	Certificate
<ul style="list-style-type: none"> • Carpentry 	<ul style="list-style-type: none"> • Carpentry

Construction Technology

Degree	Certificate
<ul style="list-style-type: none"> • Building Maintenance Technician • Technician Construction Technology 	<ul style="list-style-type: none"> • Building Maintenance Technician Certificate • Technician Construction Technology

Electricity

Degree	Certificate
<ul style="list-style-type: none"> • Construction • Maintenance 	<ul style="list-style-type: none"> • Maintenance • Residential Construction • Post-Degree Specializations: <ul style="list-style-type: none"> - Advanced Construction - Advanced Maintenance

Fine Woodworking

Degree	Certificate
<ul style="list-style-type: none"> • Fine Woodworking 	<ul style="list-style-type: none"> • Fine Woodworking

Plumbing

Degree	Certificate
<ul style="list-style-type: none"> • Plumbing 	<ul style="list-style-type: none"> • Residential Plumber • Apprentice Plumber

Solar Construction Technology

Degree	Certificate
<ul style="list-style-type: none"> • Active • Passive 	<ul style="list-style-type: none"> • Solar Construction Technology

Apprentice-Related Technology (in conjunction with the Construction Industry Training Council*)

Degree (60 Credits)	Certificate (16-32 Credits)
<ul style="list-style-type: none"> • Bricklaying • Carpentry • Drywall Applicator • Electrical • Ironworker • Masonry • Plumbing • Sheetmetal 	<ul style="list-style-type: none"> • Bricklaying • Carpentry • Drywall Applicator • Electrical • Masonry • Plumbing • Sheetmetal Worker

*Permission of Construction Technology Department Chair required.

Interdisciplinary Certificates

- Basic Plumbing & Heating Maintenance Certificate
- Building Code Certificate

Construction Technology Associate of Applied Science Degree Requirements for All Areas of Emphasis			
General Education Requirements		Construction Technology Curriculum Requirements	
<i>English/Speech</i> (COM, ENG, SPE)	3	CON 100 Computers for Construction	2
<i>Mathematics</i> (MAT 115)	3	CON 105 Blueprint Reading	3
Credit from any two of the following three areas:	6	CON 151 Construction Process	4
<i>Humanities</i> (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)			9
<i>Science</i> (AST, BIO, CHE, GEY, PHY)			
<i>Social and Behavioral Sciences</i> (ANT, ECO, GEO, HIS, POS, PSY, SOC)			
General Education Electives	3	Required Major Courses	
	15	See individual areas of emphasis for specific requirements.	36
		Total Required Credits	(Minimum) 60

Construction Technology Cluster

The Construction Technology cluster is the most comprehensive training program for the building industry in the state of Colorado. This flexible program allows students to choose courses in one or more trades in the construction industry. In addition to teaching all four National Codes, this cluster provides students with opportunities to earn interdisciplinary certificates as well as post-degree upgrading.

Construction Technology

Technician Construction Technology AAS Degree Requirements

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Major Courses

May include any trade under Construction Technology or others as approved by the student's advisor.	<u>36</u>
Total Required Credits (Minimum)	60

Generalist Construction Technology Certificate Requirements

Construction Technology Curriculum Requirements	
CON 100 Computers for Construction	2
CON 105 Blueprint Reading	3
CON 151 Construction Process	<u>4</u>
	9

Major Courses

Construction Technology requirements and electives must be approved by the student's advisor.	<u>21</u>
Total Required Credits (Minimum)	30

Building Maintenance Technician Certificate

Construction Technology Curriculum Requirements	
CON 100 Computers for Construction	2
CON 105 Blueprint Reading	3
CON 151 Construction Process	<u>4</u>
	9

The student must complete a total of 36 credits including one course from the areas listed below. No more than four courses from any one area will count toward the completion of this certificate.	<u>36</u>
Total Required Credits (Minimum)	45

Heating, Ventilation, Air Conditioning, Refrigeration

AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	4
AHR 120 Air Conditioning Systems	6
AHR 132 HVAC/R Controls I	4

Carpentry

CAR 151 Tools: Hand and Power, Portable and Stationary		4
CAR 202 Exterior Finishes	(1-8)	
CAR 203 Finishes and Refinishes	(1-4)	
CAR 208 Interior Finishes	(1-4)	
CAR 207 Roof Coverings	(1-4)	

Electricity

EIC 115 Electrical Planning		3
EIC 118 Basics of AC and DC Electricity		3
EIC 121 Electrical Installations I		3
EIC 131 National Electric Code I		3
EIC 153 Polyphase Circuit Fundamentals		3

Plumbing

PLU 100 Introduction to Plumbing		3
PLU 110 Finish and Installation of Plumbing Fixtures		3
PLU 116 Plumbing Repair		3
PLU 206 Hot Water Heating Systems		4
PLU 207 Basic Solar Energy		3

Interdisciplinary Certificates

Building Code Certificate

Credit from any two of the following four classes:

CAR 225 Uniform Building Code	(3)	
PLU 216 Uniform Plumbing Code	(3)	
AHR 216 Uniform Mechanical Code	(4)	
EIC 131 National Electric Code I	(3)	<u>6</u>
Total Required Credits (Minimum)		6

Basic Plumbing and Heating Maintenance Certificate

Major Courses

PLU 100 Introduction to Plumbing		3
PLU 110 Finish and Installation of Plumbing Fixtures		3
PLU 116 Plumbing Repair		3
AHR 102 Heating Fundamentals		4
AHR 141 Residential Forced Air Heating		4
AHR/		
PLU 206 Hot Water Heating Systems		<u>4</u>
Total Required Credits		21

Carpentry (See Fine Woodworking.)

This program provides theory and hands-on training for job-entry skills through craftsman level competencies in a variety of areas in addition to general carpentry classes. Areas of emphasis are designed to meet individual needs, whether a part- or full-time student in the following specialties.

- Residential Carpentry
- Commercial Carpentry
- Contracting
- Job Site Supervision, Code Compliance, Estimating
- Maintenance: Apartment, Commercial, Residential
- Remodeling/Renovation/Additions/Basement Remodeling
- Cabinetmaking/Furniture making and Repair and Refinishing
- Specialty Trades (some examples): Interior Finish Carpenter, Drywall, Flooring Installer, Roofer, Cabinet and Counter Top Installer, Framing, Form Carpenter

Courses are competency based. Variable credit classes are available to fit student's schedule. Courses may be repeated up to three times to increase proficiency. All classes are open to all skill levels unless otherwise noted. Additional unlisted topics are available through independent study. Personal tool requirements increase with proficiency.

Choose the number of credits shown from each group:

Structure

CAR 107	Site Preparation
CAR 108	Foundation Systems
CAR 109	Floor Framing
CAR 110	Wall Framing
CAR 111	Roof Framing
CAR 112	Stair Framing
CAR 113	Framing Labs
CAR 114	Formwork Lab

Exterior Finishes

CAR 200	Exterior Trim
CAR 201	Commercial Roofing Project
CAR 202	Exterior Finishes Lab
CAR 205	Exterior Doors and Windows
CAR 206	Exterior Wall Coverings
CAR 207	Roof Coverings

Specialties

CAR 208	Interior Finishes
CAR 215	Cabinet Installation, Countertops & Built-Ins
CAR 216	Drywall Construction
CAR 218	Commercial and Tenant Finishes
CAR 220	Remodeling, Renovation and Additions
CAR 221	Building Maintenance

Trade Skills

CON 100	Computers for Construction
CAR 150	Construction Materials
CAR 224	Contracting and the Construction Business
CAR 225	Building Codes, Permits, Inspection, Compliance and Variances
CAR 226	Contractor Licensing
CAR 227	Construction Licensing
CAR 228	Cost Estimation
CAR 229	Contractors' and Builders' Seminar
CAR 232	Carpentry Lab
	or
CAR 233	Technical Project for Specialty Trade

Construction Technology AAS Degree with Carpentry Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	9
	<hr/> 24

First Session

CAR 152	Tools	4
CON 100	Computers for Construction	2
CAR XXX	Carpentry Class from Structure Category	4
CON 105	Blueprint Reading	3
MAT 115	Applied Occupational Math	3
		<hr/> 16

Second Session

CON 151	Construction Process	4
CAR XXX	Carpentry Class from Structure Category	4
CAR XXX	Carpentry Class from Specialties Category	4
	General Education : English/Speech	3
		<hr/> 15

Third Session

CAR XXX	Carpentry Class from Trade Skills Category	4
CAR XXX	Carpentry Class from Exterior Finishes Category	4
	General Education: Humanities, Science or Social Sciences	3
CAR 232	Carpentry Lab	
	or	
CAR 233	Technical Project	4
		<hr/> 15

Fourth Session

CAR 232	Carpentry Lab	
	or	
CAR 233	Technical Project	4
CAR XXX	Carpentry Class from Specialties Category	4
	General Education: Humanities, Science or Social Sciences	3
	General Education Elective	3
		<hr/> 14

Total Required Credits **60**

Carpentry Certificate

Required Major Courses

CON 151	Construction Process	4
CAR 152	Tools: Hand & Power, Portable and Stationary	4

Choose a minimum of 4 credits from each category:

Structure	4
Exterior Finishes	4
Specialties	4
Trade Skills	4
CAR/FIW Electives (<i>must have approval of student's advisor</i>)	8
	<hr/>

Total Required Credits **32**

Electrical — Commercial/Industrial/Residential

This program is designed to prepare the student for the many career opportunities available to the competent electrician in industry or in construction.

A thorough treatment of DC, AC, and polyphase electric circuits and solid state power devices is provided to minimize the possibility of the graduate becoming technologically obsolete because of new developments in the industry.

The electrical installation courses use the latest techniques of installation according to the National Electrical Code. The electrical code classes are especially useful as preparation for state license examinations.

In addition to preparing the student to enter the field of electrical work, this program is an excellent one for job upgrading.

Construction Technology AAS Degree with Construction Electrician Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	9
	<hr/> 24

Required Major Courses

First Session

EIC 115 Electrical Planning	3
EIC 121 Electrical Installations I	3
CON 105 Blueprint Reading	3
MAT 105 Intermediate Algebra	4
CON 100 Computers for Construction	2
	<hr/> 15

Second Session

EIC 122 Electrical Installations II	3
EIC 131 National Electric Code I	3
EIC 151 DC Circuit Fundamentals	6
General Education Elective	2
	<hr/> 14

Third Session

EIC 152 AC Circuit Fundamentals	6
EIC 153 Polyphase Circuit Fundamentals	3
EIC 132 National Electrical Code	3
Science or Humanities or Social Science Course	3
	<hr/> 15

Fourth Session

EIC 200 Electrical Code Calculations	3
EIC 216 Advanced Electrical Planning	3
CON 151 Construction Process	4
Science or Humanities or Social Science Course	3
English Credit	3
	<hr/> 16

Total Required Credits **60**

Construction Technology AAS Degree with Maintenance Electrician Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	9
	<hr/> 24

Required Major Courses

First Session

EIC 115 Electrical Planning	3
EIC 152 AC Circuit Fundamentals	6
CON 105 Blueprint Reading	3
MAT 105 Intermediate Algebra	4
	<hr/> 16

Second Session

EIC 153 Polyphase Circuit Fundamentals	3
EIC 131 National Electrical Code I	3
EIC 161 *Solid State Devices and Circuits	6
CON 100 Computers for Construction	2
	<hr/> 14

Third Session

EIC 201 Transformers: Theory and Applications	3
EIC 202 *DC Machines: Theory and Applications	3
EIC 132 National Electrical Code II	3
EIC 207 Industrial Electrical Controls I	3
Science or Humanities or Social Science Course	3
	<hr/> 15

Fourth Session

EIC 203 *AC Machines: Theory and Applications	3
EIC 213 Power Transmission and Distribution	3
EIC 219 Industrial Electrical Controls II	3
CON 151 Construction Process	4
Science or Humanities or Social Science Course	3
English Credit	3
	<hr/> 16

**Take 2 of 3 classes and substitute 2 credits of general education elective in place of the third class.*

Total Required Credits **60-63**

Construction Electrician Certificate

Required Major Courses Credits

First Session

CON 105 Blueprint Reading	3
EIC 115 Electrical Planning	3
EIC 131 National Electric Code I	3
	<hr/> 9

Second Session

EIC 118 Basics of AC and DC Electricity	3
EIC 121 Electrical Installations I	3
EIC 132 National Electric Code II	3
	<hr/> 9

Third Session

CON 100 Computers for Construction	3
EIC 151 Construction Process	3
EIC 200 Electrical Code Calculation	3
	<hr/> 9

Total Required Credits **27**

Advanced Construction Electrician Certificate*

Required Major Courses	Credits
First Session	
CON 105 Blueprint Reading	3
EIC 131 National Electrical Code I	3
EIC 151 DC Circuit Fundamentals	<u>6</u>
	12
Second Session	
EIC 122 Electrical Installation II	3
EIC 132 National Electrical Code II	3
EIC 216 Advanced Electrical Planning	<u>3</u>
	9
Third Session	
EIC 152 AC Circuit Fundamentals	6
EIC 153 Polyphase Circuit Fundamentals	3
EIC 200 Electrical Code Calculations	<u>3</u>
	12
Total Required Credits	33

*Requires Construction Electrician Certificate or instructor's approval.

Post-Degree Specialization Certificate for Advanced Construction Electrician*

Required Major Courses	Credits
First Session	
EIC 161 Solid State Devices and Circuits	6
EIC 207 Industrial Electrical Controls I	<u>3</u>
	9
Second Session	
EIC 213 Power Transmission and Distribution	3
EIC 219 Industrial Electrical Controls II	<u>3</u>
	6
Total Required Credits	15

*Prerequisite: Construction Electrical Emphasis Option or instructor's approval.

Maintenance Electrician Certificate

Required Major Courses	Credits
First Session	
CON 100 Computers for Construction	2
CON 105 Blueprint Reading	3
EIC 118 Basics of AC and DC Electricity	3
EIC 122 Electrical Installations II	<u>3</u>
	11
Second Session	
EIC 131 National Electric Code I	3
EIC 202 DC Machines: Theory and Applications	3
EIC 207 Industrial Electrical Controls I	<u>3</u>
	9
Third Session	
EIC 132 National Electric Code II	3
EIC 201 Transformers: Theory and Applications	3
EIC 203 AC Machines: Theory and Applications	<u>3</u>
	9
Total Required Credits	29

Advanced Maintenance Electrician Certificate*

Required Major Courses	Credits
First Session	
CON 105 Blueprint Reading	3
EIC 118 Basics of AC and DC Electricity	3
EIC 122 Electrical Installations II	<u>3</u>
	9
Second Session	
EIC 201 Transformers: Theory and Applications	3
EIC 202 DC Machines: Theory and Applications	3
EIC 207 Industrial Electrical Controls I	3
EIC 208 Advanced National Electrical Code	<u>3</u>
	12
Third Session	
EIC 203 AC Machines: Theory and Applications	3
EIC 209 Advanced Code Calculations	3
EIC 218 Electrical Instruments and Measurements	<u>3</u>
	9
Total Required Credits	30

*Requires Certificate for Maintenance or instructor's approval

Post-Degree Specialization Certificate for Advanced Maintenance Electrician*

Required Major Courses	Credits
EIC 208 Advanced National Electrical Code	3
EIC 209 Advanced Code Calculations	3
EIC 216 Advanced Electrical Planning	3
EIC 218 Electrical Instruments and Measurements	<u>3</u>
	12
Total Required Credits	12

*Prerequisite: Maintenance Electrical Emphasis Option or instructor's approval.

Fine Woodworking *(See also Carpentry.)*

This program provides theory and hands-on training for entry skills through craftsman level competencies in a variety of specific areas in addition to general woodworking classes.

Areas of emphasis are designed to meet the individual students needs, whether part- or full-time students in the areas of millwork, cabinetmaking, furniture making, furniture restoration and repair, toolmaking, and the related topics of fine woodworking from boat and musical instrument making to bending and veneering.

Courses are competency based. Variable credit classes are available to fit student's schedule. Courses may be repeated up to three times to increase proficiency. All classes open to all skill levels unless otherwise noted. Additional unlisted topics are available through independent study. Personal tool requirements increase with proficiency.

Construction Technology AAS Degree with Fine Woodworking Emphasis Option

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses

First Session

FIW 152	Tools: Hand and Power, Portable and Stationary	4
FIW 105	Joinery	4
FIW 108	Toolmaking & Jigs (minimum)	1
FIW 118	Lathe Turning	1
FIW 122	Woodcarving	1
MAT 115	Applied Occupational Math	3
CON 100	Computers for Construction	<u>2</u>
		16

Second Session

FIW 110	Furniture Repairs (minimum)	1
FIW 115	Advanced Joinery	4
FIW 125	Finishing Wood (minimum)	1
FIW 200	Veneering and Marquetry (minimum)	1
FIW 210	Bending and Laminating (minimum)	1
FIW 120	Advanced Furniture and Cabinet Construction	8
CON 105	Blueprint Reading	3
General Education: English/Speech Credit	<u>3</u>	
		16

Third Session

FIW 116	Cabriole Legs and Queen Anne Furniture (minimum)	1
FIW 120	Advance Furniture and Cabinet Construction	3
CON 151	Construction Process	4
General Education: Humanities, Science, Social or Behavioral Science Course	<u>3</u>	
FIW Elective	<u>4</u>	
		15

Fourth Session

FIW 120	Advanced Furniture and Cabinet Construction	3
FIW Elective		4
General Education Elective		3
General Education: Humanities, Science, Social or Behavioral Science Course	<u>3</u>	
		13

Total Required Credits 60

Fine Woodworking Certificate

Required Major Courses			Credits
FIW 105	Joinery		4
FIW 108	Toolmaking & Jigs (minimum)		1
FIW 110	Furniture Repairs (minimum)		1
FIW 115	Advanced Joinery		4
FIW 116	Cabriole Legs and Queen Anne Furniture (minimum)		1
FIW 118	Lathe Turning		1
FIW 120	Advanced Furniture and Cabinet Construction		8
FIW 122	Wood Carving (minimum)		1
FIW 125	Finishing Wood (minimum)		1
FIW 152	Tools: Hand and Power, Portable and Stationary		4
FIW 200	Veneering and Marquetry (minimum)		1
FIW 210	Bending and Laminating (minimum)		<u>1</u>
			28
FIW/CAR	Electives (must have approval of student's advisor)		<u>4</u>
	Total Required Credits		32

Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R)

This program is designed to provide the student with the knowledge and skills for job entry into the air conditioning, heating and refrigeration industry in the areas of installation and maintenance as well as providing upgrading and refresher courses for those already employed in the field.

Construction Technology AAS Degree with Heating, Ventilation & Air Conditioning Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses Credits

First Session

AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	4
MAT 115 Applied Occupational Math	<u>3</u>
	15

Second Session

AHR 132 Refrigeration and Air Conditioning Controls	4
AHR 120 Air Conditioning Systems	6
AHR 125 Refrigerant Recovery Certification Training	1
English Credit	<u>3</u>
	14

Third Session

AHR 162 Heating Controls	4
AHR 141 Residential Forced Air Heating	4
AHR 206 Hot Water Heating Systems	4
Science or Humanities or Social Science Course	<u>3</u>
	15

Fourth Session

AHR 216 Uniform Mechanical Code	4
AHR 278 Advanced HVAC/R Lab	3
CON 105 Blueprint Reading	3
CON 100 Computers for Construction	3
Science or Humanities or Social Science Course	<u>3</u>
	16

Total Required Credits 60

Construction Technology AAS Degree with Air Conditioning Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses Credits

First Session

AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	4
MAT 115 Applied Occupational Math	3
English Credit	<u>3</u>
	14

Second Session

AHR 120 Air Conditioning Systems	6
AHR 125 Refrigerant Recovery Certification Training	1
AHR 132 Refrigeration and Air Conditioning Controls	4
AHR 278 Advanced Refrigeration Lab	2
Science or Humanities or Social Science Elective	<u>3</u>
	16

Third Session

AHR 200 HVAC/R Controls II	4
AHR 216 Uniform Mechanical Code	4
CON 100 Computers for Construction	4
CON 105 Blueprint Reading	<u>3</u>
	15

Fourth Session

AHR 222 Evaporative Cooling Systems and Water Treatment	4
AHR 297 Work Co-op	4
CON 151 Construction Process	4
Science or Humanities or Social Science Elective	<u>3</u>
	15

Total Required Credits 60

Construction Technology AAS Degree with Advanced Heating Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses Credits

First Session

AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
MAT 115 Applied Occupational Math	3
English Credit	<u>3</u>

Second Session

AHR 141 Residential Forced Air Heating	4
AHR 162 Heating Controls	4
AHR 299 Independent Study	2
CON 100 Computers for Construction	3
Science or Humanities or Social Science Course	<u>3</u>
	16

Third Session

AHR 151 Low Pressure Steam Heating	4
AHR 206 Hot Water Heating Systems	4
CON 105 Blueprint Reading	3
Science or Humanities or Social Science Course	<u>3</u>
	14

Fourth Session

AHR 200 HVAC/R Controls II	4
AHR 216 Uniform Mechanical Code	4
AHR 240 Advanced Heating Systems	4
CON 151 Construction Process	<u>4</u>
	16

Total Required Credits 60

Construction Technology AAS Degree with Residential Heating Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses Credits

First Session

AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
MAT 115 Applied Occupational Math	3
English Credit	<u>3</u>
	14

Second Session

AHR 141 Residential Forced Air Heating	4
AHR 162 Heating Controls	4
AHR 278 Advanced HVAC/R Lab	2
PLU 107 Piping and Back-Flow Prevention	3
Science or Humanities or Social Science Course	<u>3</u>
	16

Third Session

AHR 151 Low Pressure Steam Heating	4
AHR 206 Hot Water Heating Systems	4
CON 105 Blueprint Reading	3
CON 100 Computers for Construction	<u>3</u>
	14

Fourth Session

AHR 216 Uniform Mechanical Code	4
AHR 225 Indoor Air Quality and Ventilation	4
CON 151 Construction Process	4
Independent Study or Work Co-op	1
Science or Humanities or Social Science Course	<u>3</u>
	16

Total Required Credits 60

Construction Technology AAS Degree with Refrigeration Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses Credits

First Session

AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	4
MAT 115 Applied Occupational Math	3
English Credit	<u>3</u>
	14

Second Session

AHR 125 Refrigerant Recovery Certification Training	1
AHR 132 Refrigeration and Air Conditioning Controls	4
AHR 201 Advanced Refrigeration	6
CON 100 Computers for Construction	<u>3</u>
	14

Third Session

AHR 200 HVAC/R Controls II	4
AHR 217 Refrigeration Operator	4
AHR 278 Advanced Refrigeration Lab	3
CON 105 Blueprint Reading	3
Science or Humanities or Social Science Course	<u>3</u>
	17

Fourth Session

AHR 222 Evaporative Cooling Systems and Water Treatment	4
AHR 297 Work Co-op	4
CON 151 Construction Process	4
Science or Humanities or Social Science Course	<u>3</u>
	15

Total Required Credits 60

Residential Heating, Ventilation and Air Conditioning (HVAC) Certificate

Required Major Courses Credits

First Session

AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	<u>4</u>
	12

Second Session

AHR 120 Air Conditioning Systems	6
AHR 125 Refrigerant Recovery Certificate	1
AHR 132 AC and Refrigeration Controls	4
AHR 141 Residential Forced Air Heating	<u>4</u>
	15

Third Session

AHR 162 Heating Controls	4
AHR 206 Hot Water Heating Systems	4
AHR 216 Uniform Mechanical Code	<u>4</u>
	12

Total Required Credits 39

Advanced Heating, Ventilation and Air Conditioning (HVAC) Certificate

Required Major Courses	Credits
First Session	
AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	<u>4</u>
	12
Second Session	
AHR 120 Air Conditioning Systems	6
AHR 125 Refrigerant Recovery Certificate	1
AHR 132 AC and Refrigeration Controls	4
AHR 141 Residential Forced Air Heating	<u>4</u>
	15
Third Session	
AHR 151 Low Pressure Steam Heat	4
AHR 162 Heating Controls	4
AHR 206 Hot Water Heating Systems	<u>4</u>
	12
Fourth Session	
AHR 200 HVAC/R Controls II	4
AHR 216 Uniform Mechanical Code	4
AHR 222 Evaporative Cooling Systems and Water Treatment	<u>4</u>
	12
Total Required Credits	51

Air Conditioning Certificate

Required Major Courses	Credits
First Session	
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	<u>4</u>
Second Session	
AHR 120 Air Conditioning Systems	6
AHR 125 Refrigerant Recovery Certification Training	1
AHR 132 AC and Refrigeration Controls	4
AHR 200 HVAC Controls II	<u>4</u>
	15
Third Session	
AHR 216 Uniform Mechanical Code	4
AHR 222 Evaporative Cooling Systems and Water Treatment	4
AHR 299 Independent Study	<u>4</u>
	12
Total Required Credits	35

Residential Heating, Ventilation and Air Conditioning (HVAC) Certificate

Required Major Courses	Credits
First Session	
AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	<u>4</u>
	8
Second Session	
AHR 141 Residential Forced Air Heating	4
AHR 162 Heating Controls	4
AHR 206 Hot Water Heating Systems	<u>4</u>
	12
Third Session	
AHR 216 Uniform Mechanical Code	4
AHR 299 Independent Study	<u>4</u>
	8
Total Required Credits	28

Advanced Heating Certificate

Required Major Courses	Credits
First Session	
AHR 102 Heating Fundamentals	4
AHR 105 Electricity for HVAC/R	<u>4</u>
	8
Second Session	
AHR 141 Residential Forced Air Heating	4
AHR 151 Low Pressure Steam Heat	4
AHR 162 Heating Controls	<u>4</u>
	12
Third Session	
AHR 200 HVAC/R Controls II	4
AHR 206 Hot Water Heating Systems	4
AHR 216 Uniform Mechanical Code	<u>4</u>
	12
Fourth Session	
AHR 240 Commercial Heating Systems	4
AHR 299 Independent Study	<u>4</u>
	8
Total Required Credits	40

Refrigeration Certificate

Required Major Courses	Credits
First Session	
AHR 105 Electricity for HVAC/R	4
AHR 110 Refrigeration Fundamentals	<u>4</u>
	8
Second Session	
AHR 125 Refrigerant Recovery Certificate	1
AHR 132 HVAC/R Controls I	4
AHR 201 Advanced Refrigeration	<u>6</u>
	11
Third Session	
AHR 217 Refrigeration Operator Code	4
AHR 299 Independent Study	<u>4</u>
	8
Total Required Credits	27

Plumbing

This program is designed to prepare individuals with basic job-entry skills for plumbing. It is also intended for job upgrading in special areas and for preparation of plumbers for the State Journeyman and Masters Exams.

Construction Technology AAS Degree with Plumbing Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses

First Session

PLU 100 Introduction to Plumbing	3
PLU 107 Water Piping Methods and Back Flow Prevention	3
PLU 110 Finish and Installation of Plumbing Fixtures	3
CON 105 Blueprint Reading	3
MAT 115 Applied Occupational Math	<u>3</u>
	15

Second Session

PLU 109 Residential Plumbing	4
PLU 116 Plumbing Repair	3
PLU 207 Basic Solar Energy	3
CON 100 Computers for Construction	2
English Credit	<u>3</u>
	15

Third Session

PLU 106 Waste and Vent Layout and Code Requirements	5
PLU 206 Hot Water Heating Systems	4
PLU 208 Advanced Solar Energy	3
Science or Humanities or Social Science Course	<u>3</u>
	15

Fourth Session

PLU 210 Commercial Layout and Code Project	3
PLU 216 Uniform Plumbing Code	3
CON 151 Construction Process	4
Science or Humanities or Social Science Course	3
General Education Elective	<u>3</u>
	16

Total Required Credits 61

Apprentice Plumber's Training Certificate

	Credits
PLU 100 Introduction to Plumbing	3
PLU 106 Waste and Vent Layout and Code Requirements	5
PLU 107 Water Piping Methods and Back Flow Prevention	3
PLU 109 Residential Plumbing	4
PLU 110 Finish and Installation of Plumbing Fixtures	3
PLU 116 Plumbing Repair	3
CON 105 Blueprint Reading	3
PLU 207 Basic Solar Energy	<u>3</u>
Total Required Credits	27

Residential Plumber's Certificate

Required Major Courses	Credits
AHR 102 Heating Fundamentals	4
CON 100 Computers for Construction	2
PLU 206 Hot Water Heating Systems	4
PLU 208 Advanced Solar Energy	3
PLU 210 Commercial Layout and Code Project	3
PLU 216 Uniform Plumbing Code	3
PLU 225 Technical Project	4
WFT 120 Welding for Construction	<u>3</u>
Total Required Credits	27

Solar Construction Technology

Construction Technology AAS Degree with Active Solar Construction Technology Emphasis

The program is designed to provide the student with the knowledge and skills necessary for job entry into the solar energy installation and maintenance field. Upgrading and refresher courses are offered for people already employed in the field.

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Required Major Courses	Credits
PLU 100 Introduction to Plumbing	3
PLU 107 Water Piping Methods and Back Flow Prevention	3
PLU 206 Hot Water Heating Systems	4
PLU 207 Basic Solar Energy	3
ENT 125 Basic Solar Design and Layout	3
ENT 126 Solar Collectors	3
ENT 225 Solar Domestic Hot Water Systems	3
ENT 226 Solar Panel Installation	4
ENT 298 Solar Labs	4
AHR 102 Heating Fundamentals	4
AHR 141 Residential Forced Air Heating	<u>4</u>
	37
Total Required Credits	61

Construction Technology AAS Degree with Passive Solar Construction Technology Emphasis

The program is designed to provide the student with the knowledge and skills necessary for job entry into the passive design solar energy field. Upgrading and refresher courses are offered for people already employed in the field.

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Major Courses	Credits
PLU 207 Basic Solar Energy	3
ENT 141 Passive Solar Systems I	3
BRI 120 Bricklaying for Construction Trades	3
ENT 145 Passive Solar Retrofit	3
AHR 102 Heating Fundamentals	4
DRC 116 Architectural Drafting – Framing Construction	6
DRI 105 Introduction to Drafting	6
DRI 111 Introduction to Computer-Aided Drafting	6
ENT 298 Solar Lab	<u>3</u>
	37

Total Required Credits 61

Solar Construction Certificate

	Credits
ENT 125 Basic Solar Design and Layout	3
ENT 126 Solar Collectors	3
ENT 225 Solar Domestic Hot Water Systems	3
ENT 298 Solar Lab	3
AHR 102 Heating Fundamentals	4
AHR 141 Residential Forced Air Heating	4
PLU 100 Introduction to Plumbing	3
PLU 107 Water Piping Methods and Back Flow Prevention	3
PLU 206 Hot Water Heating Systems	<u>4</u>
Total Required Credits	30

Apprentice-Related Emphasis

Construction Technology AAS Degree with Apprentice-Related (Applicable Trade) Emphasis

All apprentice-related courses are taught in cooperation with the Colorado Industry Training Council. Students must have the approval of the Chair of Construction Technology.

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>9</u>
	24

Apprentice Trade-Related Certificate	16-32
Construction Technology Electives	<u>4-20</u>

Total Required Credits 60

Apprentice-Related Carpentry Certificate

	Credits
ARC 111 Carpentry I	4
ARC 112 Carpentry I (continued)	4
ARC 121 Carpentry II	4
ARC 122 Carpentry II (continued)	4
ARC 131 Carpentry III	4
ARC 132 Carpentry III (continued)	4
ARC 141 Carpentry IV	4
ARC 142 Carpentry IV (continued)	<u>4</u>
Total Required Credits	32

Apprentice-Related Drywall Certificate*

	Credits
ARD 111 Drywall Applicator I	4
ARD 112 Drywall Applicator I (continued)	4
ARD 121 Drywall Applicator II	4
ARD 122 Drywall Applicator II (continued)	<u>4</u>

Total Required Credits 16

*This degree requires additional electives (see advisor).

Apprentice-Related Electrical Certificate

	Credits
ARE 111 Electrical I	4
ARE 112 Electrical I (continued)	4
ARE 121 Electrical II	4
ARE 122 Electrical II (continued)	4
ARE 131 Electrical III	4
ARE 132 Electrical III (continued)	4
ARE 141 Electrical IV	4
ARE 142 Electrical IV (continued)	<u>4</u>

Total Required Credits 32

Apprentice-Related Ironworker Certificate*

	Credits
ARI 111 Ironworker I	4
ARI 112 Ironworker I (continued)	4
ARI 121 Ironworker II	4
ARI 122 Ironworker II (continued)	4
ARI 131 Ironworker III	4
ARI 132 Ironworker III (continued)	<u>4</u>

Total Required Credits 24

*This degree requires additional electives (see advisor).

Apprentice-Related Plumbing/Pipefitter Certificate

	Credits
ARP 111 Plumbing I	4
ARP 112 Plumbing I (continued)	4
ARP 121 Plumbing II	4
ARP 122 Plumbing II (continued)	4
ARP 131 Plumbing III	4
ARP 132 Plumbing III (continued)	4
ARP 141 Plumbing IV	4
ARP 142 Plumbing IV (continued)	<u>4</u>

Total Required Credits 32

Apprentice-Related Sheet Metal Certificate

	Credits
ARS 111 Sheet Metal I	4
ARS 112 Sheet Metal I (continued)	4
ARS 121 Sheet Metal II	4
ARS 122 Sheet Metal II (continued)	4
ARS 131 Sheet Metal III	4
ARS 132 Sheet Metal III (continued)	4
ARS 141 Sheet Metal IV	4
ARS 142 Sheet Metal IV (continued)	<u>4</u>

Total Required Credits 32

Continuing Education for Health Care

(See Health Careers and Continuing Health Career Education Cluster)

Criminal Justice

Degrees: Associate of Applied Science
Associate of General Studies

Certificates: Variable

Basic Law Enforcement Training Academy
Corrections
Investigations
Victim Assistance Administration
Victim Assistance Direct Service

The Criminal Justice program is designed for students seeking a career in the criminal justice field. Students may choose from the following emphasis areas: law enforcement, corrections, juvenile or victim assistance direct service. Certificate programs in investigations, corrections, victim assistance direct service and victim assistance administration are available. The Associate of General Studies degree is articulated with Metropolitan State College of Denver for students continuing in the criminal justice and criminology field.

Associate of Applied Science Degree Requirements

Required Major Courses		Credits
CRJ 110	Introduction to Criminal Justice	3
CRJ 111	Substantive Criminal Law	3
CRJ 112	Procedural Criminal Law	3
CRJ 125	Law Enforcement Operations	3
CRJ 135	Judicial Function	3
CRJ 145	Correctional Process	3
CRJ 210	Constitutional Law	3
CRJ 220	Human Relations and Social Conflict	3
SOC 255	Criminology	3
CRJ 211	or Criminal Behavior	3
		<u>27</u>

General Education Requirements

<i>English/Speech</i>		
ENG 121	English Composition I	3
SPE 115	Principles of Speech Communications	3
SPE 125	or Interpersonal Communications	3
<i>Mathematics (100 or above)</i>		3
Credit from any two of the following three areas:		6
<i>Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)</i>		
<i>Science (AST, BIO, CHE, GEY, PHY)</i>		
<i>Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)</i>		
		<u>15</u>

Other Required Courses (Emphasis areas)* 21-24

Note: All students must select an emphasis area in the Criminal Justice program. Course substitutions may be made with the permission of your faculty advisor. Students who are not presently employed in the field will be required to take a minimum of 3 credits in CRJ 297 Cooperative Education and 1 credit of COM 115 The Job Search Process before they can receive their associate degree.

Total Required Credits 63-66
Total Required Contact Hours 945-990

Note: CRJ 110 is a prerequisite for all CRJ courses.

*Criminal Justice Emphasis Areas

Area of Emphasis: Corrections

			Credits
CRJ 146	Community Based Corrections		3
CRJ 147	Institutional Based Corrections		3
CRJ 150	Introduction to Victims of Crime and Trauma		3
CRJ 215	Constitutional Rights of Inmates		3
CRJ 225	Crisis Intervention		3
CRJ 250	Penology		3
CRJ 255	Organization and Management of Institutions		3
CRJ 256	Classification and Treatment of Offenders		3
			<u>24</u>

Area of Emphasis: Juvenile

			Credits
CRJ 146	Community Based Corrections		3
CRJ 148	Juvenile Institutions		3
CRJ 150	Introduction to Victims of Crime and Trauma		3
CRJ 215	Constitutional Rights of Inmates		3
CRJ 216	Juvenile Law and Procedure		3
CRJ 225	Crisis Intervention		3
CRJ 235	Delinquent Behavior		3
CRJ 256	Classification and Treatment of Offenders		3
			<u>24</u>

Area of Emphasis: Law Enforcement

Students must complete (with CRJ advisor approval) seven (7) of the Law Enforcement Emphasis courses listed below for a minimum of twenty-one (21) credits.

			Credits
CRJ 116	Civil Liability		3
CRJ 118	Report Writing		3
CRJ 126	Patrol Procedure		3
CRJ 150	Introduction to Victims of Crime and Trauma		3
CRJ 190	Financial Investigations		3
CRJ 214	Colorado Revised Statutes		3
CRJ 216	Juvenile Law and Procedure		3
CRJ 217	Psychoactive Drugs: Use, Effects and Social Impact		3
CRJ 218	Drug Investigative Strategies		3
CRJ 225	Crisis Intervention		3
CRJ 240	Criminal Investigation		3
CRJ 245	Interview and Interrogation		3
CRJ 246	Traffic Investigation and Management		3
			<u>21</u>

Area of Emphasis: Victim Assistance Direct Service

			Credits
CRJ 150	Introduction to Victims of Crime and Trauma		3
CRJ 151	Domestic Violence		3
CRJ 152	Sexual Assault		3
CRJ 153	Violence Against Children		3
CRJ 154	Applications in Victim Assistance		3
CRJ 225	Crisis Intervention		3
CRJ 239	Managing Emergency Worker Stress		3
CRJ 287	Adult Survivors of Childhood Molestation		3
PSY 227	Death and Dying		3
SOC 237	or Sociology of Death and Dying		3
SOC 258	Violence and Morality		3
			<u>30</u>

Associate of General Studies Degree with an Emphasis in Criminal Justice

Students are urged to consult with the criminal justice faculty advisor before beginning any program of study.

General Education Requirements		Credits
<i>English/Speech</i>		
ENG 121	English Composition I	3
ENG 122	English Composition II	3
SPE 115	Principles of Speech Communication	3
<i>Humanities</i> (courses from two different disciplines)		9
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212		
<i>Mathematics</i> (any course from the following)		3
MAT 121, 125, 135, 201, 202		
<i>Science</i> (any course from the following)		4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212		
<i>Social and Behavioral Sciences</i> (courses from two different disciplines)		9
ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102		
		9
		34

Required Major Courses

CRJ 110	Introduction to Criminal Justice	3
CRJ 111	Substantive Criminal Law	3
CRJ 112	Procedural Criminal Law	3
CRJ 125	Law Enforcement Operations	3
CRJ 135	Judicial Function	3
CRJ 145	Correctional Process	3
CRJ 210	Constitutional Law	3
CRJ 220	Human Relations and Social Conflict	3
SOC 255	Criminology	3
or		
CRJ 211	Criminal Behavior	3
		3
Total Required Credits		61

Corrections Certificate

The Corrections Certificate program will be of interest to those individuals seeking employment in the field of corrections at the county or state level.

Required Major Courses		Credits
CRJ 110	Introduction to Criminal Justice	3
CRJ 111	Substantive Criminal Law	3
CRJ 135	Judicial Function	3
CRJ 140	Control and Supervision of Inmates	3
CRJ 145	Correctional Process	3
CRJ 211	Criminal Behavior	3
CRJ 215	Constitutional Rights of Prisoners	3
CRJ 219	Career Issues in Criminal Justice	3
ENG 121*	English Composition I	3
SPE 115	Principles of Speech Communication	3
Total Required Credits		30
Total Required Contact Hours		450

* Prospective students must take the ASSET basic skills assessment test. Students scoring 42 or lower on the writing skills portion will take ENG 105 prior to ENG 121. Those with a score of 43 or higher on the writing skills portion will take ENG 121.

Investigations Certificate

The Investigations Certificate program will be of interest to those individuals seeking employment in the private sector or for certain students seeking academic recognition in a specialized area of law enforcement.

Required Major Courses			Credits
CIS 118	Microcomputer Applications (Required Lab)		5
CRJ 110	Introduction to Criminal Justice		3
CRJ 111	Substantive Criminal Law		3
CRJ 112	Procedural Criminal Law		3
CRJ 118	Report Writing		3
CRJ 135	Judicial Function		3
CRJ 210	Constitutional Law		3
CRJ 240	Criminal Investigation		3
CRJ 245	Interview and Interrogation		3
Total Required Credits			29
Total Required Contact Hours			435

Victim Assistance Direct Service Certificate

Students must have strong writing skills. A writing sample will be evaluated by the English Department. Students must write at the ENG 121 level. Students also need to be computer literate. Those students who do not have experience using a computer will need to take:

CIS 118	Microcomputer Applications (IBM) and corequisite computer lab	5
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Those students who are computer literate must demonstrate computer ability prior to CIS 118 being waived. Prospective students must take the ASSET basic skills assessment test. Students scoring 43 or higher on the writing skills portion will take ENG 121. Students scoring 42 or lower on the writing skills portion will take ENG 105 prior to ENG 121. Writing ability and computer literacy are pre-requisites to receiving the certificate.

			Credits
CRJ 110	Introduction to Criminal Justice		3
CRJ 150	Introduction to Victims of Crime and Trauma		3
CRJ 151	Domestic Violence		3
CRJ 152	Sexual Assault		3
CRJ 153	Violence against Children		3
CRJ 154	Applications in Victim Assistance		3
CRJ 225	Crisis Intervention		3
CRJ 239	Managing Emergency Worker Stress		3
CRJ 287	Adult Survivors of Childhood Molestation		3
PSY 227	Death and Dying		3
or			
SOC 237	Sociology of Death and Dying		3
SOC 258	Violence and Morality		3
Total Required Credits			33
Total Required Contact Hours			495

Victim Assistance Administration Certificate

			Credits
CRJ	110	Introduction to Criminal Justice	3
CRJ	150	Introduction to Victims of Crime and Trauma	3
CRJ	154	Applications in Victim Assistance	3
CRJ	239	Managing Emergency Worker Stress	3
CRJ	288	Grant Writing for Non-profit Organizations	2
ACC	121	Principles of Accounting I	5
MAN	200	Human Resources Management	3
MAN	226	Principles of Management	3
MAR	216	Principles of Marketing	3
Total Required Credits			28
Total Required Contact Hours			420

Basic Law Enforcement Training Academy P.O.S.T. Certification

Red Rocks Community College offers a P.O.S.T. Certified Basic Law Enforcement Training Academy. For information call ext. 464. Students earn 24 credits in this program. All or a portion of these credits may be applied toward the AAS or AGS degree in Criminal Justice. See the Academy coordinator for details.

This program is not an open enrollment offering. Currently there are three academies per year, each 14 weeks in length (Fall, Spring, Summer). Prospective candidates must complete an academy-specific application process.

Drafting Technology

The Drafting Technology program includes four options:

- Drafting for Industry (Degree and Certificate)
- Drafting for Construction/Architecture (Degree and Certificate)
- Drafting for Civil/Mapping (Degree and Certificate)
- Blueprint Reading for Architectural Construction (Certificate)

Computer-Aided Drafting

Computer-aided drafting is part of the drafting program but may be taken by other individuals meeting requirements of DRI 105, 106, 107, 109 or equivalent. A computer lab fee may be assessed.

Drafting for Industry Option A

The Drafting for Industry option prepares students for job entry positions on drafting and design teams. It also provides computer-aided drafting used in industrial plants, engineering and manufacturing firms and government agencies.

Required Major Courses			Credits
DRI	105*	Introduction to Drafting	6
DRI	106*	Basic Descriptive Geometry	3
DRI	107*	Section and Dimensioning Practices	6
DRI	109*	Intersections and Developments	3
DRI	111*	Introduction to Computer-Aided Drafting—AUTOCAD	6
DRI	116*	Mechanical Assembly and Detail Projects	6
DRI	201	Architectural—Structural Plans	6
DRI	204	Industrial Plant Development	9
DRI	207	Large Mechanical Equipment	9
DRI	208	Material Handling and Conveying	6
Required Major Credits			60

General Education Requirements for all Options

ENG	131	Technical Writing	3
<i>Humanities</i> (ART, FRE, GER, HUM, LIT, PHI, SPA, THE)			3

or

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

MAT	102*	General Mathematics for College Students	5
PHY	105	Conceptual Physics	4
			15

Total Required Credits			75
Total Required Contact Hours			1445

* Certificate Requirements for Drafting for Industry—Option A (35 credits)

Note: The 100 level courses are first year and 200 level are second year. Refer to the course descriptions for additional electives.

Drafting for Construction/Architecture Option B

The Drafting for Construction option prepares students for job entry positions on drafting and design teams. It also provides computer aided drafting used in engineering construction firms, steel fabricating companies, public utilities, government agencies and architectural-structural firms.

Required Major Courses Credits

See Option A for courses DRI 105 through DRI 111. These courses are required for **all** options except option D.

DRC	116*	Architectural Drafting—Frame Construction	6
DRI	201	Architectural—Structural Plans	6
DRI	204	Industrial Plant Development	9
DRC	207	Structural Design and Drafting	6
DRC	208	Practical Application of Construction Drafting	9

Required Major Credits for Option B 60

General Education Requirements 15

See Option A.

Total Required Credits 75
Total Required Contact Hours 1445

** Certificate Requirements for Drafting for Industry/Construction - Option B. DRI 105, 106, 107, 109, 111, DRC 116 and MAT 100. (35 credits)*

Drafting for Civil/Mapping Option C

The Drafting for Civil/Mapping option prepares students for job entry positions on drafting and design teams. It also provides computer-aided drafting used in local, state and federal government agencies, petroleum, geological, civil engineering, mineral development and planning companies.

Required Major Courses Credits

See Option A for courses DRI 105 through DRI 111. These courses are required for **all** options.

DRM	116*	Introduction to Civil Mapping	6
DRM	200	Map Construction Techniques	9
DRM	205	Advanced Map Construction Techniques	6
DRM	210	Civil Mapping Technical Project	9
DRI	297	Cooperative Education	3
		or	
DRI	299	Independent Study	9

Required Major Credits for Option C 60

General Education Requirements 15

Total Required Credits 75
Total Required Contact Hours 1445

See Option A. These courses are required for **all** options.

** Certificate Requirements for Drafting for Industry/Civil-Option C. DRI 105, 106, 107, 109, 111, DRM 116 and MAT 110. (35 credits)*

Blueprint Reading for Architectural Construction Option D

Certificate: 20 Credits

The Blueprint Reading for Architectural Construction option prepares students to read architectural plans, details and specifications, work with estimating and building needs and to develop a knowledge of building materials. These courses will be of particular help to individuals working in various aspects of the building trades. Computer-aided estimating may be included in BRC 128.

Required Major Courses Credits

BRC	125	Blueprint Reading for Residential Buildings	3
BRC	126	Blueprint Reading for Commercial Buildings	3
BRC	127	Construction Materials	3
BRC	128	Estimating Construction Costs	3
BRC	129	Building Codes and Inspection	3

Additional Required Courses

MAT	102	General Mathematics for College Students	5
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Total Required Credits 20

Total Required Contact Hours 375

Early Childhood Education

Degree: Associate of General Studies
Certificate: Director
Certificate: Group Leader

Red Rocks Community College provides three possible alternatives for one desiring training in the Early Childhood Education field. These alternatives are Group Leader Certificate, Director's Certificate, and an Associate of General Studies Degree in Early Childhood Education. Through the courses offered in the Early Childhood Education program, you may enter the field at the entry level and become a group leader as approved by the State of Colorado Department of Human Services. You may then utilize the courses in the Group Leader Certificate to partially meet requirements for Director Qualification. You may also pursue an Associate of General Science Degree in Early Childhood Education, that transfers to various four-year colleges within the state.

In Colorado, the three alternatives for fulfilling the requirements for the Director Certificate in Early Childhood Education are 1) completion of all the (*) courses and two years or the equivalent of two full years of acceptable experience; 2) an Associate of General Studies degree, including completion of the (*) courses and one year of experience; or 3) the equivalent of one year of acceptable, full-time experience.

Associate of General Studies: 64 Credits

All individuals seeking an AGS degree from Red Rocks Community College must be able to pass the ASSET Test of General Education Skills with a level of 41+ in Reading Comprehension and 43+ in Writing.

- You should plan your program of study with the Early Childhood Education Coordinator.
- You are encouraged to take ECE 101 or 111 and ECE 238 in your first year of classes.
- ECE 226 should be taken only after taking ECE 238 and six additional ECE credits.
- Contact an Early Childhood Education faculty advisor the semester prior to taking ECE 102 to ensure space availability in the class.
- Some ECE classes are offered on a two-year cycle. Contact the Early Childhood Education Coordinator for the proposed schedule of these courses.
- If you wish to focus on infants and toddlers, you may substitute ECE 111 and ECE 112 for ECE 101 and ECE 102

Required Major Courses			Credits
First Session			
ENG	121	English Composition I	3
SOC	101	Sociology I	3
or			
SOC	205	Marriage and Family	
Humanities Elective (core)			3
ECE	238	Child Growth and Development	4
ECE	101	Intro to Early Childhood Profession	3
			16

By the end of 16 credit hours, you need to take the assessment of basic skills. If you cannot achieve a score of 41+ on the reading and 43+ in writing, you will need to seek additional help in the Learning and Resource Center.

Second Session (Spring Only)

ECE	148	Guidance Strategies for Children	3
ECE	227	Methods and Techniques	3
PSY	101	General Psychology I	3
SPE	115	Principles of Speech Communication	3
ECE	102	Introduction to ECE Lab	3
			15

Third Session (Fall Only)

(ECE 116 and ECE 118 offered alternating years)

ECE	205	Nutrition for Young Children	3
ECE 116		Supporting Children's Language and Cognitive Growth	3
ECE	118	Supporting Emotional and Social Growth	3
ECE	216	Administration: Human Relations for the Early Childhood Profession	3
BIO	111	General College Biology I (Preferred)	5
or			
GEY	111	Physical Geology	4
or			
AST	101	Astronomy I	4
ECE		Elective	3
			16-17

Fourth Session (Spring or Summer Only)

ECE	115	Creativity and the Young Child	3
ECE	295	Professional Issues	3
ECE	226	Administration of ECE Centers	3
MAT	135	Introduction to Statistics (preferred)	3-4
or			
MAT	121	College Algebra	
ECE	117	First Start: Children with Disabilities	3
			15-16

Total Required Credits (minimum) 63

Electives

ECE 111 and ECE 112 may be substituted for ECE 101 and 102. ECE 291 are one credit classes covering current topics of interest ECE 291 Family Child Care Classes

Early Childhood Education Director Certificate: 31 Credits

The Director Certificate at Red Rocks Community College enriches the social services director qualifications by offering ECE 102 or ECE 112 Lab in order to provide a field of experience in Early Childhood Education. Professional issues are required as well. All individuals receiving this certificate from Red Rocks are required to pass the ASSET Test of General Education skills with a level of 41+ in reading comprehension and 43+ in Writing.

Students may take all courses required by Colorado State Social Services for Director Qualification including ECE 205, ECE 227, ECE 238, PSY 101, SOC 101 plus six additional ECE credits in methods. Colorado also requires two full years (or equivalent) of acceptable experience or an Associate of General Studies degree including the above listed courses and one year (or equivalent) of acceptable, full-time experience.

Required Major Courses		Credits	
First Session			
ECE	101	Introduction to Early Childhood Education	3
ECE	102	ECE Lab Experience	3
			6
Second Session			
ECE	148	Guidance Strategies for Children	3
ECE	238	Child Development	4
ECE	227	Methods and Techniques	3
			10
By the end of 16 credit hours, you are required to take the ASSET Test which is an assessment of basic skills. If you cannot achieve a score of 41+ on the reading comprehension and 43+ in writing, you will be required to seek additional help in the Learning and Resource Center.			
Third Session			
ECE	205	Nutrition of the Young Child	3
PSY	101	Introduction to Psychology	3
ECE	216	Administration: Human Relations for the Early Childhood Profession	
		or	
ECE	226	Administration of Early Childhood Care and Education Programs	3
			9
Fourth Session			
ECE	295	Childhood Education Professional Issues	3
SOC	101	Introduction to Sociology I	
		or	
SOC	205	Marriage and Family	3
			6
Total Required Credits			31

Early Childhood Education Group Leader Certificate: 16 Credits

The Group Leader certificate at Red Rocks meets Colorado State Human Services' guidelines for a group leader. Individuals qualifying for the Child Development Associate (CDA) certificate automatically qualify for a Group Leader certificate.

Required Major Courses:		Credits	
First Session			
ECE	101	Introduction to Early Childhood	3
ECE	102	Introduction to ECE Lab	3
			6
Second Session (Spring Only)			
ECE	148	Guidance Strategies for Children	3
ECE	238	Child Growth and Development	4
ECE	227	Methods and Techniques	3
			10
Total Required Credits			16

Economics

Associate of Arts Degree With an Emphasis in Economics

Economics is the study of how our society feeds, clothes, houses and otherwise materially supports itself. It answers the fundamental questions of how?, what? and for whom? Graduates work in business, government and teaching in very colorful and varied careers and they are able to contribute in many ways to answering these basic questions that confront all societies and individuals. Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		Credits	
ACC	121	Accounting Principles I	4
ACC	122	Accounting Principles II	4
ACC	226	Cost Accounting	4
ECO	201	Principles of Macroeconomics (Core)	3
ECO	202	Principles of Microeconomics (Core)	3
HIS	101	Western Civilization I (Core)	3
HIS	102	Western Civilization II (Core)	3
Core Curriculum Requirements			
<i>English/Speech</i>			
ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3
<i>Humanities</i> (courses from two different disciplines)			9
ART 111, 112; Foreign Language 111, 112, 211, 212;			
HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122;			
PHI 111, 112, 113; THE 211, 212			
<i>Mathematics</i> (any course from the following)			3
MAT 121, 125, 135, 201, 202			
<i>Science</i> (any course from the following)			4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112;			
GEY 111, 121; PHY 105, 111, 112, 211, 212			
Electives		11	
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.			
Total Credits		60	

Electricity— Commercial/Industrial/ Residential

(See *Construction Technology*.)

Electronic Digital/Computer Technology

Certificate: 28 Credits
Degree: Associate of Applied Science

This is a comprehensive program designed to give a thorough understanding of digital electronics and computer systems up through and including local area networks. This program provides the basic essentials for entry level positions in field engineering and support as well as opportunities for job upgrading. The preparation includes most hardware and network types. These platforms include vendors and products that are common from the smallest to the largest user. These systems include MS_DOS, Windows, NetWare, and others. The student designs and writes a simple network in machine language; this provides a strong understanding of network communications. The student plans, installs, configures and supports networks, applications and systems. The student works in a real working environment providing end-user support and training.

*Required Major Courses		Credits
First Session (Fall)		
EDT	110** DC Circuits	7
EDT	120** AC Circuits	7
EDT	216 Microprocessor Programming Part A	2
MAT	100 Introductory Algebra	3
		19
Second Session (Spring)		
EDT	130** Digital Logic Devices for Electronics	7
EDT	140** Linear Circuits	7
EDT	217 Microprocessor Programming Part B	2
PHY	105 Conceptual Physics	4
		20
Third Session (Fall)		
EDT	210 Computer Hardware	7
EDT	220 Computer Troubleshooting and Support	7
ENG	231 Technical Writing	3
General Education Elective		2
		19
Fourth Session (Spring)		
EDT	230 Microprocessors In Networks Part 1	7
EDT	240 Microprocessors In Networks Part 2	7
PSY	100 Human Relations in Business	3
		17
Total Required Credits		75

**This schedule is for full-time day students. Night students have a different schedule. Please contact your advisor.*

***Certificate Requirements*

Colorado Network Engineering Certificate

This program is designed to prepare the student for a career in network engineering and support. The preparation includes most major network platforms. These platforms include vendors and products that are common, from the smallest to the largest networks. This program prepares the student to be a leader in future super data highways. The student begins by preparing basic network and OS background. The student focuses on networking and its building blocks. The student is encouraged to take the IBM A+ Technical Certification Test and the NOVELL Certification Tests to receive the CNE and Master CNE rating from NOVELL and the A+ Certification from Computing Technology Industry Association. The students design and write a simple networking program in machine language; this ensures their understanding of network communications. This program has as its goal the production of enterprise network engineering specialists. (Note: Red Rocks Community College has no control over curriculum changes made by the agencies mentioned above.)

Required Major Courses		Credits
First Session		
EDT	230 Microprocessor In Networks Part A	7
EDT	240 Microprocessor In Networks Part B	7
		14
Second Session		
EDT	260 NOVELL Certified CNE & Master CNE Part 1	7
		7
Third Session		
EDT	270 NOVELL Certified CNE & Master CNE Part 2	7
		7
Third Session		
EDT	280 NOVELL Certified CNE & Master CNE Part 3	7
		7
Fourth Session		
EDT	285 NOVELL Certified CNE & Master CNE Part 4	7
		7
Total Required Credits		42

Note: Only grades of C or better in courses with an EDT prefix or courses transferred in for EDT prefix courses are counted toward the degree or certificate.

Note: All incoming students are expected to have a strong computer background. If that is not the case for students, they should first take EDT 210 and EDT 220 **Before Attempting** EDT 230 and EDT 240.

Emergency Management & Planning

Degree: Associate of Applied Science
Certificate: 30 Credits

Completion of this curriculum prepares individuals for:

- Entry into a career of Emergency Management Planning or related field.
- Promotion within Emergency Management or Preparedness divisions in Public and Private work places.
- Advancement to a four-year college in pursuit of a Bachelor of Science degree in Emergency Management or Public Administration.

The Emergency Management and Planning Program is designed to serve as the focal point for the development and delivery of emergency management training to enhance the capabilities of federal, state and local government officials; volunteer organizations; and the private sector to minimize the impact of disasters on the American public. This program offers a number of training activities that develop operational capabilities and facilitate an effective response in the event of an emergency. This program provides a degree option and enhanced employment opportunities for those in the program. Emergency management, preparedness, mitigation and planning are very vital professions in government, private industry and emergency response agencies. Strong emphasis is placed on prevention, public education and planning.

Prior to enrollment, all students who are not presently working in Emergency Management are required to take assessment tests which will be administered in the Learning Development Center. The emergency management instructor, upon consultation with assessment staff, evaluates test results in order to assist students with proper placement in their course of study in emergency management. Advanced students are expected to substitute advanced courses for introductory courses.

Associate of Applied Science Degree

Required Major Courses		Credits
EMP 101	Introduction to Emergency Management	3
EMP 105	Emergency Planning	3
EMP 106	Exercise Design	1½
EMP 107	Computer Systems & Information	3
EMP 108	Mass Casualty	1
EMP 109	Community Emergency Response Teams and Incident Command	3
EMP 110	Exercise Evaluation	1½
EMP 200	Hazard Mitigation Planning	3
EMP 240*	Leadership and Influence	1
EMP 241*	Decision Making and Problem Solving	1

EMP 242*	Effective Communications	1
EMP 244	Developing Volunteer Resources	1
ENV 101	Introduction to Environmental Science	3
FST 107	Hazardous Materials Awareness & Operations	3
FST 201	Instructional Methodology (Instructor I)	3
		<u>30</u>

General Education Requirements		Credits
ENG 131	Technical Writing	3
GEY 235	GIS—Geographical Information Systems	4
MAT 135	Introduction to Statistics	3
PSY 101	General Psychology or three 1 credit hour PSY courses	3
SOC 101	Introduction to Sociology	3
		<u>16-17</u>

Electives		Credits
EMP 280	Public Policy in Emergency Management	1
EMP 291	Introduction to Public Information	2
EMP 292	Radiological Fundamentals (FCRRT)	2
EMP 297	Cooperative Education (Internship)	1-6
EMP 299	Independent Study	3
FST 255	Fire Service Management	3
MAN 116	Principles of Supervision	3
MAN 226	Principles of Management	3
SPE 125	Interpersonal Communications	3
		<u>14-18</u>

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Required Credits 60

**Other approved courses may be substituted with counselor approval.*

Certificate Program

		Credits
EMP 101	Introduction to Emergency Management	3
EMP 105	Emergency Planning	3
EMP 106	Exercise Design	1½
EMP 109	Community Emergency Response and Incident Command	3
EMP 110	Exercise Evaluation	1½
EMP 240	Leadership and Influence	1
EMP 241	Decision Making and Problem Solving	1
EMP 242	Effective Communications	1
EMP 244	Developing Volunteer Resources	1
EMP 246	Capstone Seminar	1
EMP 280	Public Policy in Emergency Management	1
EMP 291	Introduction to Public Information	2
EMP 292	Radiological Fundamentals (FCRRT)	3
EMP 297	Cooperative Education (Internship)	1-6
EMP 299	Independent Study (Program Analysis)	1-6
FST 201	Instructional Methodology	3
GEY 235	Computers Systems (GIS)	3
		<u>30</u>

Total Required Credits 30

Energy Technologies

Degree: Associate of Applied Science (AAS)
Four Options
Certificates: Four Options

The Energy Technologies program is designed to give students opportunities to earn four certificate options and four options within the Associate of Applied Science degree: Active Solar—Energy Systems, Passive Solar Energy Systems, Construction and Renewable Energy Electrical Power Generation and Conservation and Energy Management Technology.

Required Courses for All Options		Credits
ENT	101 Introduction to Energy Technologies	3
CIS	115 Introduction to Computers (Required Lab)	5
ENV	101 Introduction to Environmental Science	4
		12

General Education Requirements Apply to All Program Options

	<i>English/Speech</i> (COM, ENG, SPE)	3
	<i>Mathematics</i> (101 or above)	3
PHY	105 Conceptual Physics	4

Credit from any two of the following three areas: 5

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

15

Option 1

Active Solar—

Degree: Associate of Applied Science
Energy Systems Certificate: 35 Credits

The program is designed to provide the student with the knowledge and skills necessary for job entry into the solar energy installation and maintenance field. Upgrading and refresher courses are offered for people already employed in the field.

Required Major Courses		Credits
AHR	102 Heating Fundamentals	4
AHR	141 Residential Heating	4
CAR	151 Construction Process	4
ENT	125 Basic Solar Design and Layout	3
ENT	132 Basic Solar Controls	4
ENT	153 Renewable Energy Construction	4
ENT	225 Domestic Hot Water Energy	3
ENT	228 Solar System Troubleshooting	3
ENT	233 Advanced Solar Controls	3
PLU	100 Orientation to Tools, Basic Plumbing Drawings	3
PLU	107 Water Piping Methods	3
PLU	206 Hot Water Heating, Installation and Maintenance	4
		42

Total Required Credits 69

Option 2

Degree: Associate of Applied Science
Passive Solar Energy Systems and
Construction Certificate: 35 Credits

The program is designed to provide the student with the knowledge and skills necessary for job entry into the passive design solar energy field. Upgrading and refresher courses are offered for people already employed in the field.

Required Major Courses		Credits
AHR	141 Residential Heating	4
ENT	141 Passive Solar Systems I	3
ENT	145 Passive Solar Retrofit	3
ENT	160 The Energy-Efficient Intelligent Building	3
ENT	162 Indoor Air Quality	3
ENT	242 Passive Solar Systems II	4
ENT	295 Passive Solar Design Project	5
CAR	151 Construction Process	4
DRI	105 Introduction to Drafting	6
DRI	111 Introduction to Computer-Aided Drafting, AUTOCAD	6
		41

Total Required Credits 68

Option 3

Degree: Associate of Applied Science
Renewable Energy Electrical Power Generation
Certificate: 35 Credits

The program is designed to provide the student with the knowledge and skills necessary for job entry into the renewable energy electrical generation field. Upgrading and refresher courses are offered for people already employed in the field.

Required Major Courses		Credits
EIC	105 Electrical Blueprint Reading	3
EIC	118 Basics of AC and DC Electricity	3
EIC	121 Electrical Installations I	3
EIC	131 National Electric Code I	3
ENT	120 Small Scale Wind Energy Systems	3
ENT	121 Small Scale Photovoltaics Systems	3
ENT	135 Conventional and Non-conventional Electrical Power Sources	3
ENT	220 Large Scale Wind Energy Systems	3
ENT	221 Large Scale Photovoltaic Systems	3

Plus 12 credit hours of ENT or EIC prefix electives. 12

39

Total Required Credits 65

**Option 4
Conservation and Energy Management
Technology Certificate: 35 Credits
Degree: Associate of Applied Science**

The program is designed to provide the student with the knowledge and skills necessary for job entry into the conservation and energy management field. Upgrading and refresher courses are offered for people already employed in the field.

Required Major Courses			Credits
AHR	102	Heating Fundamentals	4
		or	
AHR	105	Electricity for HVAC/R	4
AHR	141	Residential Heating	4
AHR	240	Commercial Heating Systems	4
CAR	225	Building Codes, Permits, Inspection, Compliance and Variances	3
ENT	135	Conventional and Non-conventional Electrical Power Sources	3
ENT	160	The Energy-Efficient Intelligent Building	3
ENT	162	Indoor Air Quality	3
ENT	165	Residential Energy Audits and Conservation	3
ENT	225	Solar Domestic Hot Water Systems	3
ENT	265	Commercial Energy Audits and Conservation	3
WQM	100	Introduction to Water Quality Management	3
WQM	115	Water Sources and Supply	3
Plus 3 credit hours of AHR, PLU, WQM or ENT prefix electives.			<u>3</u>
			42
Total Required Credits			68

English

Degree: Associate of Arts With an Emphasis in English

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in English. For students who do not plan to major in English, emphasis in this area provides an excellent, general liberal arts background for many professions such as teaching, writing, community service, law and research.

Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
Select 21 credits from the following courses:			
ENG	131	Technical Writing I	3
ENG	221	Creative Writing I	3
LIT	115	Introduction to Literature (Core)	3
LIT	201/	Masterpieces of Literature I, II (Core)	3
	202		3
LIT	125	Study of the Short Story	3
LIT	126	Study of Poetry	3
LIT	127	Study of the Novel	3
LIT	211/	Survey of American Literature I, II	3
	212		3
LIT	221/	Survey of British Literature I, II	3
	222		3

Core Curriculum Requirements

English/Speech

ENG 121 English Composition I	3
ENG 122 English Composition II	3
SPE 115 Principles of Speech Communications	3

Humanities (courses from two different disciplines) 9
 ART 111, 112; Foreign Language 111, 112, 211, 212;
 HUM 121, 122, 123; MUS 120, 121, 222; PHI 111, 112;
 THE 211, 212; LIT 115, 201, 202

Mathematics (any course from the following) 3
 MAT 121, 125, 135, 201, 202

Science (any course from the following) 4
 AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111,
 112; GEY 111, 121; PHY 105, 111, 112, 211, 212

Social and Behavioral Sciences (courses from two different disciplines) 9
 ANT 101, 111; ECO 201, 202; GEO 105; HIS 101,
 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

Electives 5
 Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits **60**

Environmental and Safety Technology

Degree: Associate of Applied Science

Through the integration of the complicated environmental, health and safety (EHS) concerns of business and industry, Red Rocks has developed a complete program available to individuals interested in a career field in EHS and those wanting to upgrade their skills. For transfer students, the courses may be accepted into certain baccalaureate degree programs.

EST consists of the following areas of emphasis:

Environmental Conservation
 Environmental Management
 Environmental Science
 Energy Conservation and Management
 Hazardous Materials Technician
 Health & Safety Technology
 Water Resources Management

Degree Requirements (60 Total Credits):

Required Major Courses (16 Credits)
 Area of Emphasis (19 Credits)
 General Education (25 Credits)

General Education Requirements			Credits
CIS	118	Microcomputer Applications	4
ENG	121	English Composition I	3
ENG	131	Technical Writing	3
SPE	115	Principles of Speech Communication	3
or			
SPE	125	Interpersonal Communication	3
MAT	121**	College Algebra	4
Science Electives			8
			25

Recommended Courses

COM 115 Job Search Process	1
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Required Major Courses (all areas of emphasis)

ENV	101	Introduction to Environmental Science	3
EST	102	Environmental Regulatory Framework	3
OSH	131	General Industry Standards	5
EST	111*	Chemistry of Hazardous Materials	5
			16

*Those students taking the Environmental Science cluster must take CHE 111.

**or higher

Area of Emphasis: Energy Conservation and Management (19 credits)

ENT	101	Introduction to Energy Technology	3
ENT	160	The Energy-Efficient Building	3
ENT	162	Indoor Air Quality	3
ENT	165	Residential Energy Audits and Conservation	3

Electives (from Solar Construction or other environmental area)

Total Required Credits **60**

Area of Emphasis: Environmental Conservation (19 Credits)

BIO	111	General College Biology I	5
BIO	227	Ecology	4
BIO	228	Field Biology	3
GEY	111	Physical Geology	4
PAR	203	Natural Resource Management	3
		Total Required Credits	60

Area of Emphasis: Environmental Management (19 credits)

			Credits
EST	101	Understanding Regulations and Standards	1
EST	201	Water Pollution: Compliance and Control	3
EST	205	Hazardous Materials and Waste Management	3
EST	225	Air Pollution	3
EST	250	Environmental Audits	3
EST	XXX	Elective	6
		Total Required Credits	60

Area of Emphasis: Environmental Science (19 credits)

BIO	111	General College Biology I	5
GEY	111	Physical Geology	4
EST	XXX	Elective	3
Elective	XXX		1
Science Electives			6
		Total Required Credits	60

Areas of Emphasis: Hazardous Materials Technician (19 credits)

EST	107	Hazardous Materials I - Awareness and Operations	3
EST	202	Strategy and Tactics	3
EST	253	Incident Command	3
EST	254	Hazardous Materials II-Technician	6
EST	235	Hazardous Materials Transportation	3
Elective			1
		Total Required Credits	60

**Areas of Emphasis: Health & Safety
Technology (19 credits) - Option 1 (safety)**

			Credits
FST	102	Introduction to Fire Science and Suppression	3
OSH	201	Worker's Compensation Cost Containment	2
OSH	202	Accident Prevention	2
OSH	203	Ergonomics: Managing Task Stress	3
OSH	207	Industrial Hygiene	3
OSH	196	Safety Program Planning and Administration	3
OSH	XXX	Elective	3
Total Required Credits			60

**Areas of Emphasis: Health & Safety
Technology (HST) (19 credits) - Option 2 (health)**

EST	104	Health and Safety Applications (OSHA Training)	3
OSH	203	Ergonomics: Managing Task Stress	3
OSH	207	Industrial Hygiene	3
OSH	xxx	Electives	10
Total Required Credits			60

**Areas of Emphasis: Water Pollution
Management(19 credits)**

EST	150	Stormwater Management for Industrial Activity	2
EST	201	Water Pollution: Compliance and Control	3
PAR	203	Natural Resource Management	3
WQM	119	Basic Water Quality Analysis	4
WQM	230	Industrial Monitoring and Treatment	3
Electives			4
Total Required Credits			60

Financial Services

**Certificate: 32 Credits
Degree: Associate of Applied Science**

The financial services industry is one of the fastest growing in the Front Range. Red Rocks offers an Associate of Applied Science Degree with two areas of emphasis—Banking and Brokerage Operations. The Banking option can be taken in cooperation with the American Institute of Banking. There is also a two-semester certificate in Brokerage Operations.

Area of Emphasis: Banking

Required Major Courses			Credits
BUS	216	Legal Environment of Business	4
FIS	217	Principles of Banking	3
FIS	218	The Trust Business	3

Required Business-Related Courses			
ACC	121	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
BTE	100*	Keyboarding (Required Lab) (or elective)	3
BUS	110	Mathematics of Business/Personal Finance	3
BUS	115	Introduction to Business	3
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
FIS	297*	Cooperative Education or Electives	3
MAN	116	Principles of Supervision	3
MAN	218	Ethics and Successful Business	3
MAN	225	Managerial Finance	3
MAN	226	Principles of Management	3
MAR	216	Principles of Marketing	3
REE	105	Real Estate Finance	3

General Education Requirements			
ECO	201	Principles of Macroeconomics	3
ENG	121	English Composition I	3
MAT	100	Introductory Algebra (or higher level course)	3
SPE	125	Interpersonal Communication	3
or			
COM	125	Communication in the Work Place	

General Education Elective (select from the following) 3
Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

or
Science (AST, BIO, CHE, GEY, PHY) _____

Total Required Credits (minimum)	71
Total Contact Hours (minimum)	1065

* Students must choose 3 credits in cooperative education and/or electives with approval of faculty advisor.

Electives			Credits
CIS	260	COBOL Programming (Required Lab)	4
ECO	225	Money and Banking	3
FIS	210	Consumer Lending	3
FIS	212	Commercial Lending	3
FIS	219	Residential Mortgage Lending	3
FIS	205	Bank Investments and Funds Management	2
MAN	239	Business Policies	3
MAN	240	Management Information Systems	3

Area of Emphasis: Brokerage Operations

Required Major Courses

FIS	151	Securities Industry I: Operations	3
FIS	152	Securities Industry II: Products	3
BUS	216	Legal Environment of Business	4

Required Business-Related Courses

ACC	121	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
BTE	100*	Keyboarding (Required Lab) (or elective)	3
BUS	115	Introduction to Business	3
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
FIS	297*	Cooperative Education and/or Electives	12
MAN	218	Ethics and Successful Business	3

General Education Requirements

COM	125	Communication in the Workplace or	3
SPE	125	Interpersonal Communication	3
ECO	201	Principles of Macroeconomics	3
ENG	121	English Composition I	3
MAT	100	Introductory Algebra (or higher level course)	3

General Education Elective 3

Choose from *Humanities* (ART, FRE, GER, HUM,LIT, MUS, PHI, SPA, THE)

or

Science (AST, BIO, CHE, GEY, PHY)

Total Required Credits (minimum)	62
Total Contact Hours (minimum)	930

* Students must choose 12 credits in cooperative education and/or electives with approval of faculty advisor.

Electives			Credits
ACC	161	Understanding Financial Statements	3
BTE	125	Office Procedures	3
BUS	216	Legal Environment of Business	4
FIS	218	The Trust Business	3
MAN	116	Principles of Supervision	3
MAN	226	Principles of Management	3

Brokerage Operations Certificate

Required Courses

BTE	100*	Keyboarding (Required Lab) (or elective with approval)	3-4
BUS	115	Introduction to Business	3
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
ENG	121	English Composition I	3
FIS	151	Securities Industry I: Operations	3
FIS	152	Securities Industry II: Products	3
FIS	297	Cooperative Education or elective	3
MAT	100	Introductory Algebra (or higher level course)	3
SPE	125	Interpersonal Communications or	3
COM	125	Communication in the Workplace	

Total Required Credits (minimum)	32
Total Required Contact Hours (minimum)	480

* Students must choose 3 credits in cooperative education and/or electives with approval of faculty advisor.

Fine Woodworking

(See Construction Technology.)

Fire Science Technology

Degree: Associate of Applied Science

Completion of this curriculum prepares individuals for:

- Entry into a career of fire suppression, prevention or related field.
- Promotion within a fire department or within the fire service.
- Advancement to a four-year college in pursuit of a Bachelor of Science degree in Fire Science Administration.

Emphasis is placed on modern methods of fire prevention and suppression, and management of the fire service. Public and private fire protection systems; life safety of fire service personnel and civilians; protection of property through the application of code enforcement; and the increasing problems of hazardous materials and arson are studied.

Prior to enrollment, all students who are not presently members of a fire department are required to take assessment tests which are administered in the Learning and Resource Center. The fire science instructor, upon consultation with assessment staff, evaluates test results in order to assist students with proper placement in their course of study in fire science. Advanced students are expected to substitute advanced courses for introductory courses.

Required Major Courses

FST	102*	Introduction to Fire Science and Suppression	3
FST	103*	Firefighter Occupational Health and Safety	3
FST	104	Fire Protection Systems	3
FST	105*	Building Plans and Construction	3
FST	106*	Fire Inspection Practices (Fire Inspector I)	3
FST	107	Hazardous Materials I—Awareness and Operations	3
FST	201	Instructional Methodology (Instructor I)	3
FST	202	Firefighting Strategy and Tactics	3
FST	203*	Fire Science Hydraulics	3
FST	204	Codes and Ordinances	3
FST	205	Fire Cause Determination	3
FST	206	Fire Company Supervision and Leadership (Fire Off. II)	3
PHE	100	Physical Education Aerobics I	1
PHE	150	Physical Education Aerobics II	1
PHE	200	Physical Education Aerobics III	1
			39

General Education Requirements

CHE	101	Introduction to Chemistry I or Science elective	4-5
ENG	121	English Composition I	3
MAT	100	Introductory to Algebra or higher	3
		Humanities or Liberal Arts Course	3
		Social and Behavioral Sciences Course	3
			16-17

Elective Courses

EST	201	Chemistry of Hazardous Materials I	3
EMS	227	Emergency Medical Technician—B	10
EMS	237	Emergency Medical Technician—Paramedic	24
FST	100**	Fire Academy (Firefighter I)	3
FST	101	Fire Academy (Firefighter II)	3
FST	110	Job Placement and Assessment	3
FST	111	Private Fire Protection Systems	3
FST	112	Fire Service Planning	3
FST	113	Introduction to Fire Prevention Awareness	3
FST	114	Fire Company Organization Procedures	3
FST	115	Introduction to Industrial Fire Protection	3
FST	116	Industrial Fire Prevention	3
FST	120	Confined Space Safety and Rescue (OSHA Certification)	3
FST	121	Rope Rescue Module I	1
FST	122	Rope Rescue Module II	1
FST	123	Rope Rescue Module III	1
FST	127	Technical Heavy Rescue	3-9
FST	150	Public Fire Prevention and Education (Public Fire Education)	3
FST	151	Driver Operator (Operator I, II, III)	3
FST	152	Wildland Firefighter (I, II)	3
FST	207	Strategy and Tactics II	3
FST	208	Codes and Ordinances II	3
FST	250	Chemistry for Fire Protection	3
FST	251	Fire Service and the Law	3
FST	252	Fire Investigation (Fire Investigator)	3
FST	253	Incident Command	3
FST	254	Hazardous Materials II (Technician Level)	3
FST	255	Fire Service Management (Fire Officer II)	3
FST	256	Fire Administration (Fire Officer III)	3
FST	257	Volunteer Fire Department Administration	3
FST	258	Wildland Fire Incident Management and Organization	2
FST	259	Wildland Fire Strategy and Tactics	2
FST	260	Fire Related Collapse of Buildings (<i>may substitute for FST 105 only</i>)	3
FST	261	Fire Operation in the Urban Interface	3
FST	264	Fire Hazard and Risk Analysis	3
FST	265	Fire Administration Risk Management	2
FST	290	Advanced Topics	1-3
FST	297**	Cooperative Education Academy	4
FST	297	Internship	1-6
FST	299	Independent Study and Analysis	1-3

**** Required for students not currently employed in the Fire service or related field.**

Three-Part Program

			Credits
FST	100	75 hours Fire Essentials Classroom Lectures	
FST	297	75 hours Fire Academy Drill Ground	
FST	297	72 hour internship with a local fire department	
			9

Total Required Credits

66-69

Areas of Emphasis: Fire Science Technology

Certificates of completion for the following areas of emphasis may be obtained by written application to the Director of Fire Science Technology.

Area of Emphasis: Code/Ordinance Certificate

FST	105	Building Plans and Construction	3
FST	106	Fire Inspection Practices	3
FST	204	Codes and Ordinances	3
FST	260	Fire Related Collapse of Buildings	3
MAN	219	Public Relations Management	<u>3</u>
			15

Area of Emphasis: Emergency Medical Service/Paramedic Certificate

EMS	227	Emergency Medical Technician—B	8
EMS	237*	Emergency Medical Technician/ Paramedic	<u>23</u>
			31

*EMS 237 is available through the St. Anthony's Hospital EMS Program. With completion of this course the student receives 23 credits toward an Associates Degree in Fire Science or for a Paramedic Technician Degree.

Area of Emphasis: Fire Investigations Certificate

FST	205	Fire Cause Determination	3
FST	252	Arson Investigation	3
FST	299	Independent Study—Fire Analysis	3
		Police and Fire Personnel only	
CRJ	240	Criminal Investigations	3
CRJ	245	Interviewing Techniques	<u>3</u>
			15

Area of Emphasis: Fire Service Management Certificate

FST	201	Instructional Methodology	3
FST	206	Fire Company Supervision and Leadership	3
FST	253	Incident Command	3
FST	260	Fire Related Collapse of Buildings	3
FST	299	Independent Study and Analysis	<u>3</u>
			15

Area of Emphasis: Hazardous Materials Technician Certificate

FST	107	Hazardous Materials Awareness and Operations Level	3
EST	201	Chemistry of Hazardous Materials I	3
FST	202	Firefighting Strategy and Tactics	3
FST	253	Incident Command	3
FST	254	Hazardous Materials Technician	<u>3</u>
			15

Area of Emphasis: Officer Development

FST	114	Fire Company Organization	3
FST	201	Instructional Methodology	3
FST	206	Fire Company Supervision and Leadership	3
FST	207	Strategy and Tactics II/ICS	3
FST	208	Advanced Codes (PUB ED)	3
FST	251	Fire Service Legal Considerations	3
FST	255	Fire Service Management	3
FST	256	Fire Administration	3
FST	265	Risk Analysis (Community and Firefighter Safety)	3
FST	299	Independent Study and Analysis	<u>3</u>
			30

Area of Emphasis: Wildland Management Certificate

FST	152	Wildland Firefighting	3
FST	253	Command of Major Incidents	3
FST	261	Wildland Fire Management and Organization	3
FST	262	Wildland Fire Strategy and Tactics	2
FST	263	Fire Operations in the Urban Interface	<u>2</u>
			13

Foreign Languages

Associate of Arts Degree With an Emphasis in Foreign Languages

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in a foreign language. For students who do **not** plan to major in a foreign language, knowledge of a second language may significantly improve changes of professional advancement in careers such as business, computer technology, medicine, engineering and in the natural and behavioral sciences.

Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
ENG	121	English Composition I (Core)	3
ENG	122	English Composition II (Core)	3
SPE	115	Principles of Speech Communication (Core)	3

Choose one (FRENch, GERman, SPANish)

FRE/GER/SPA	111	Foreign Language I (Core)	5
FRE/GER/SPA	112	Foreign Language II (Core)	5
FRE/GER/SPA	211	Foreign Language III (Core)	3
FRE/GER/SPA	212	Foreign Language IV (Core)	3

Core Curriculum Requirements

<i>Humanities</i> (any course from the following)			3
ART 111, 112; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212			

<i>Mathematics</i> (any course from the following)			4
MAT 121, 125, 135, 201, 202			

<i>Science</i> (any course from the following)			4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212			

<i>Social and Behavioral Sciences</i> (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102			9
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Electives			16
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.			

Total Credits **60**

* Students with an emphasis in Spanish are encouraged to complete HUM 126 and HIS 271.

Geology

Associate of Science Degree With an Emphasis in Geology

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in geology.

Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
BIO	112	General College Biology II (Core)	5
CHE	111	General College Chemistry I (Core)	5
GEY	111	Physical Geology (Core)	4
GEY	121	Historical Geology (Core)	4
GEY	XXX	Other GEY courses	6
MAT	121	College Algebra (Core)	4
MAT	122	College Trigonometry	3

Core Curriculum Requirements

<i>English/Speech</i>			
ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Humanities</i> (any two courses from the following)			6
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212			

<i>Social and Behavioral Sciences</i> (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102			6
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Electives			8
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.			

Total Credits **60**

Health Careers and Continuing Education Cluster

Continuing Education for Health Care

Certificates: Variable Credits

Continuing Education is offered, as indicated by community needs, to augment knowledge and skills of nurses and other health care professions.

Course	Title	Credits
CEN 104	Healing and the Mind	1/2
CEN 105	Basic Newborn Assessment	1/2
CEN 106	Case Management	1/2
CEN 107	Camp Health Care	1/2
CEN 110	Neurolinguistic Programming I	1/2
CEN 201	Ethics in Health Care	1/2
CEN 203	Women's Holistic Health Care	1/2
CEN 206	OB/GYN Emergencies	1/2
CEN 208	Basic EKG Interpretation	1
CEN 209	Spanish for Health Care Level I	1
CEN 210	Physical Assessment of the Adult	2-3
CEN 212	Neurolinguistic Programming II	1/2
CEN 213	Spiritual Role in Health Care	1/2
CEN 216	Humor Therapy	1/2
CEN 217	Phlebotomy	1
CEN 218	Better Charting and Legal Documentation	1/2-1
CEN 220	Law Every Nurse Should Know	1/2-2
CEN 221	High Level Wellness	1
CEN 224	Massage Therapy and Healing Touch	1
CEN 225	Introduction to Home Health Nursing	1/2-1
CEN 226	Intravenous Therapy	1
CEN 227	Communication Skills	1/2-1
CEN 228	Solution Focused Counseling	1/2
CEN 229	Wellness Counseling	1
CEN 230	Trauma Assessment and Intervention	1
CEN 231	Carpal Tunnel Syndrome	1/2
CEN 232	Caring for the Caregiver	1/2
CEN 233	Organisms of Concern in the 1990's	1/2
CEN 235	Nutritional Therapy and Health	1/2
CEN 236	Dance Therapy and Healing	1/2
CEN 237	Authentic Movement: Inner Pathway to Healing	2

CEN 239	Intravenous (IV) Certification	4 1/2
CEN 241	Healing Imagery: Body, Mind and Spirit	1/2
CEN 242	Therapeutic Touch	1
CEN 243	Teaching in Community/Home Health Nursing	1/2
CEN 244	Holistic Nursing Level I	1
CEN 249	Journaling	1
CEN 250	Home Health Nursing Skills Part I	1/2
CEN 251	Music as a Therapy for Wellness	1
CEN 252	Menopause: Traditional and Natural Approaches	1/2-1
CEN 254	Holistic Nursing-Level II	2
CEN 255	Spanish for Health Care Level II	1
CEN 256	Holistic Nursing Level III	2
CEN 257	ACLS (Advanced Cardiac Life Support)	2
CEN 258	Journaling the Spiritual Journey	1
CEN 260	Bereavement Counseling	1/2
CEN 261	Pediatric Emergencies in Home Care	1/2
CEN 262	Advanced Therapeutic Touch	1
CEN 263	Self-Esteem and the Child	1
CEN 264	Documentation in Home Health	1/2-1
CEN 265	Personal Power: Gift of Self-Esteem	1
CEN 266	Physical Assessment for Home Health	1
CEN 267	Living Without Limits	1/2
CEN 269	Healing Presence	1/2
CEN 271	AIDS Update	1/2
CEN 274	Quality Assurance in Home Health	1/2
CEN 276	Creating Healthy Relationships	1
CEN 277	Addictive Disorders	1/2
CEN 280	Pain Management	1/2
CEN 281	Home Health Nursing Skills Part II	1/2
CEN 282	Legal Issues in Home Health Care	1/2
CEN 283	Psychoneuroimmunology	1/2
CEN 285	Stress Management in Health Care	1/2-1
CEN 287	Nurse Entrepreneur	1/2
CEN 289	Career Alternatives Within Nursing	1/2

Continuing Education Refresher Nursing:

CER 200	Registered Nurse Refresher Course	8-12
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Gerontology:

GPM 100	Introduction to Gerontology	3
GPM 102	Community Resources for Seniors	3
GPM 103	Contemporary Issues in Aging	3
GPM 104	Elderly with Special Needs	3
GPM 105	Health and Wellness for the Aging	3
GPM 106	Elder Law	1/2

Medical Assisting Program

Degree: Associate of Science

Certificate: 49 Credits

The Medical Assisting program is designed to prepare students, upon successful completion, for a career as an allied health professional, assisting physicians in ambulatory care settings. This program prepares students to be multi-skilled by including a full range of administrative and clinical medical assisting skills. Students are required to complete a clinical internship at the end of the academic portion in order to receive a certificate or degree.

Associate of Applied Science

Required Major Courses Credits

First Session (Fall)

First Seven Weeks			
HEO	100	Medical Terminology	3
HEO	104	Anatomy & Physiology	4

Second Seven Weeks			
BTE	102	Keyboarding Applications*	4
BTE	140	Medical Office I	4
English/Speech (SPE 115, ENG 121)			3

Second Session (Spring)

First Seven Weeks			
CIS	118	Microcomputer Applications	5
BTE	141	Medical Office II	4

Second Seven Weeks			
HEO	220	Pharmacology for Health Occupations	3
BTE	206	Coding/Health Insurance Methods and Claims	4
Mathematics (MAT 102 is recommended)			3

Third Session (Summer)

First Seven Weeks			
HEO	230	Clinical Skills for the Medical Office	4
Social Science and Behavioral Science (ANT, ECO, GEO, HIS, POS, PSY, SOC)			3

Second Seven Weeks			
HEO	240	Medical Office Laboratory Skills	4
Science (AST, BIO, CHE, GEY, PHY)			3

Fourth Session (Fall)

First Seven Weeks			
BTE	115	Data Entry I	4
Humanities (ART, FRE, GER, HUM, LIT, PHI, SPA, MUS, THE)			3

Second Seven Weeks			
HEO	297	Medical Assisting Internship (270 Contact Hours)	6

Total Associate Degree Credits	64
Total required contact hours	1215

Certificate Program

Required Certificate Courses Credits

First Session (Fall)

First Seven Weeks			
HEO	100	Medical Terminology	3
HEO	104	Anatomy & Physiology	4

Second Seven Weeks			
BTE	102	Keyboarding Applications*	4
HEO	220	Pharmacology for Health Occupations	3
BTE	140	Medical Office I	4

Second Session (Spring)

First Seven Weeks			
CIS	118	Microcomputer Applications	5
BTE	141	Medical Office II	4

Second Seven Weeks			
BTE	115	Data Entry I	4
BTE	206	Coding/Health Insurance Methods and Claims	4

Third Session

First Seven Weeks			
HEO	230	Clinical Skills for the Medical Office	4
HEO	240	Medical Office Laboratory Skills	4

Second Seven Weeks			
HEO	297	Medical Assisting Internship (270 Contact Hours)	6

Total Certificate Credits	49
Total Required Contact Hours	990

* (Students with a typing speed of less than 25 wpm will need to take BTE 100 prior to enrolling in BTE 102. Please consult with an Advisor.)

Medical Office

Students must complete the required major courses plus the following courses and meet the general education requirements.

			Credits
General Education Requirements			15
Required Major Courses			
BTE	102	Keyboarding Applications <i>(minimum entry speed is 30 wpm)</i>	*4
BTE	115	Data Entry I	*4
BTE	140	Medical Office I	4
BTE	141	Medical Office II	4
BTE	142	Medical Transcription	*2.67
BTE	206	Coding/Health Insurance Methods and Claims	4
BTE	297	Cooperative Education/Internship	3
CIS	118	Microcomputer Applications	*5
CIS	125	Word Processing, WP 6.1 WIN	*4
HEO	100	Medical Terminology	3
HEO	104	Anatomy for Health Occupations	4
Required Business-Related Courses			
BUS	217	Business Communications and Report Writing	3
MAN	116	Principles of Supervision or	
MAN	120	Office Management	3
Total Required Credits			65.67
Total Required Contact Hours			985

Note: See BTE faculty advisor for any course substitutions and for advising. Students must earn a minimum of C in all BTE/CIS courses required for a certificate or degree.

* Includes lab credit

Nurse Aide/Home Health Aide

Certificate: 5 Credits

This program prepares students to assist the client in hospital, home or in a long-term care facility. Students learn to perform basic nursing procedures, personal care and how to assist the patient and family with general household activities. Students also gain an understanding of the responsibilities involved in working with persons of all ages in wellness and illness. After successful completion of this program, the student is eligible to take the Colorado Board of Nursing examination for Nurse Aide/Home Health Aide Certification. *THIS COURSE IS REQUIRED FOR ENTRANCE INTO SOME NURSING PROGRAMS.*

			Credits
NUR	108	Nurse Aide/Home Health Aide	5
Total Required Credits			5
Total Required Contact Hours			92

Pre-Nursing

Students interested in nursing may take courses which will transfer. Admission and course requirements vary among nursing programs; therefore, students are encouraged to work closely with an advisor in the college or university offering the program.

The following courses are suggested			Credits
ANT	101	Cultural Anthropology	3
BIO	201	Human Anatomy and Physiology I	4
BIO	203	Human Anatomy and Physiology II	4
CHE	101	Introduction to Chemistry I	5
CHE	102	Introduction to Chemistry II	5
ENG	121	English Composition I	3
ENG	122	English Composition II	3
MAT	135	Introduction to Statistics	3
NUR	108	Nurse Aide/Home Health Aide	5
NUR	200	Basic Nutrition	3
PSY	101	General Psychology I	3
PSY	235	Human Growth and Development	3
SOC	101	Introduction to Sociology I	3

Electives

Electives must be selected from art, foreign languages, history, humanities, philosophy, political science, medical terminology, and ethics in health care.

Note: Completion of course work at Red Rocks does not guarantee acceptance into a nursing program.

Radiologic Technology

(In cooperation with Lutheran Medical Center)
Degree: Associate of Applied Science

The Radiologic Technology program is designed to provide medical diagnostic radiography training for students who wish to establish eligibility to participate in the national certification examination of the American Registry of Radiologic Technologists. Graduates who pass this national certifying examination are qualified to assume diagnostic radiographer positions in thousands of medical facilities across the nation, both in hospitals and private clinics or offices. After gaining on the job experience these positions may allow the technologist to participate in advanced level examinations as well in computed tomography, magnetic resonance imaging or mammography.

Required Major Courses			Credits
First Session (Fall)			
BIO	201	Anatomy and Physiology	4
RAD	100	Introduction/Radiology	3
RAD	105	Radiographic Procedures I	4
RAD	106	Clinical Education I	3
Second Session (Spring)			
BIO	203	Anatomy and Physiology	4
RAD	115	Radiographic Procedures II	4
RAD	116	Clinical Education II	3
RAD	160	Radiologic Physics I	3
Third Session (Summer)			
RAD	125	Radiographic Procedure III	3
RAD	126	Clinical Education III	5
RAD	165	Image Production I	2
RAD	170	Radiologic Physics II	3
Fourth Session (Fall)			
RAD	236	Clinical Education IV	5
RAD	265	Image Production II	3
RAD	255	Special Radiology Procedures V	2
HEO	220	Pharmacology	3
Fifth Session (Spring)			
RAD	247	Clinical Education V	8
RAD	270	Radiation Biology	2
RAD	275	Radiation Pathology	2
Sixth Session (Summer)			
RAD	257	Clinical Education VI	8
HEO	230	Medical Assisting	4
Total Required Credits			78

Prior to beginning the Radiologic Technology Program, interested students are required to apply to both the college and the Program. There are six pre-requisite courses that must be completed before beginning the radiography program.

ENG	121	English Composition	3
PSY	101	General Psychology	3
HUM	121	Survey of Humanities	3
COM	125	Communications Workplace	3
MAT	100	Introductory Algebra	3
HEO	100	Medical Terminology	3

Interested students should apply to the Radiologic Technology program in the Fall of the year preceding the year in which they wish to begin. Other admission requirements are available upon request. All of the clinical experiences are conducted at Lutheran Medical Center.

History

Associate of Arts Degree With an Emphasis in History

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in history. This program provides preparation for students interested in teaching, government service, law, research, business and industry, journalism, publishing, historical societies, museums, archives and library science.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
ANT	101	Cultural Anthropology (Core)	3
ECO	201	Principles of Macroeconomics (Core)	3
ECO	202	Principles of Microeconomics (Core)	3
GEO	105	World Regional Geography (Core)	3
HIS	101	Western Civilization I (Core)	3
HIS	102	Western Civilization II (Core)	3
HIS	201	U.S. History I (Core)	3
HIS	202	U.S. History II (Core)	3
POS	111	American Government (Core)	3
SOC	101	Introduction to Sociology I (Core)	3
SOC	102	Introduction to Sociology II (Core)	3

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

Humanities (courses from two different disciplines) 9
ART 111, 112; Foreign Language 111, 112, 211, 212;
HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121,
122; PHI 111, 112, 113; THE 211, 212

Mathematics (any course from the following) 3
MAT 121, 125, 135, 201, 202

Science (any course from the following) 4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112;
GEY 111, 121; PHY 105, 111, 112, 211, 212

Electives 3

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits **61**

Humanities

Associate of Arts Degree With an Emphasis in Humanities

Humanities is the study of literature, philosophy, art, music and theatre. It provides an excellent background for professions such as teaching, writing, community service, law and research.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
ART	111	Art History I (Core) or	3
ART	112	Art History II (Core)	
HUM	121	Survey of Humanities I (Core)	3
HUM	122	Survey of Humanities II (Core)	3
HUM	123	Survey of Humanities III (Core)	3
HUM	215	Ideas in a Changing Society	3
LIT	115	Introduction to Literature (Core)	3
MUS	120	Music Appreciation (Core)	3
PHI	111	Introduction to Philosophy (Core)	3
THE	211	Development of Theatre I (Core) or	3
THE	212	Development of Theatre II (Core)	3

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Mathematics</i> (any course from the following)	3
MAT 121, 125, 135, 201, 202	

<i>Science</i> (any course from the following)	4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212	

<i>Social and Behavioral Sciences</i> (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102	9
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Electives	8
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.	

Total Credits **60**

Management

Degree: Associate of Applied Science Certificate: Variable Credits

Business organizations are always looking for people who can help them achieve their goals. Training in management helps increase an individual's opportunity for advancement within a corporate or administrative structure. Both large and small businesses stress the need for academic preparation in addition to work experience. Depending upon the managerial level and company, advanced degrees may be required.

Associate of Applied Science Degree

The Associate of Applied Science degree is available with an emphasis in one of the following areas:

- Commercial Food Service Management
- Human Resources Management
- Management and Supervision
- Pre-Hospital Emergency Medical Services Management
- Production Management
- Public Administration
- Purchasing Management

Note: See program advisor for restrictions on when certain courses are offered.

Management Degree Requirements (for all areas of emphasis)

			Credits
ACC	121	Principles of Accounting I	4
BUS	110	Mathematics of Business/Personal Finance	3
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
MAN	116	Principles of Supervision	3
MAR	216	Principles of Marketing	3
			28

General Education Requirements (for all areas of emphasis)

ECO	201	Principles of Macroeconomics	3
ENG	121	English Composition I	3
MAT	100	Introductory Algebra or higher	3
<i>Humanities</i> (ART, FRE, GER, HUM, LIT, PHI, SPA, MUS, THE)			3

or

Science (AST, BIO, CHE, GEY, PHY)

Credit from any of the five following areas:	3
<i>English/Speech</i> (COM, ENG, REA, SPE)	

Humanities (ART, FRE, GER, HUM, LIT, PHI, SPA, MUS, THE)

Mathematics (101 or above)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Total General Education Credits **15**

Note: All general education courses must be selected with the approval of the program advisor. Substitutes to the general education requirements may be made only with the approval of the program advisor.

Area of Emphasis: Commercial Food Service Management

			Credits
RTA	101	Restaurant Arts I	12
		or	
CFS	297	Cooperative Education	
RTA	102	Restaurant Arts II	12
		or	
CFS	297	Cooperative Education	
MAN	205	Small Business Management	3
		or	
MAR	215	Retail Management	
MAR	217	Principles of Purchasing	3
			<u>30</u>
Total Required Credits			73
Total Required Contact Hours			1095

Area of Emphasis: Human Resources Management

			Credits
BUS	226	Business Statistics	3
MAN	200	Human Resources Management	3
MAN	212	Negotiation and Conflict Resolution	3
MAN	215	Organizational Behavior	3
MAN	216	Employee Recruiting and Training	3
MAN	217	Compensation and Employee Benefits Management	3
MAN	218	Ethics and Successful Business	3
MAN	219	Labor-Management Relations	3
MAN	XXX	Management electives (selected with the approval of program advisor)	
		or	
MAN	297	Cooperative Education	6
			<u>30</u>
Total Required Credits			73
Total Required Contact Hours			1095

Area of Emphasis: Management and Supervision

			Credits
ACC	122	Principles of Accounting II	4
MAN	200	Human Resources Management	3
MAN	117	Time Management	1
MAN	225	Managerial Finance	3
MAN	226	Principles of Management	3
MAN	239	Business Policies	3
MAN	240	Management Information Systems	3
MAN	XXX	Management electives (selected with the approval of program advisor)	3
		or	
MAN	297	Cooperative Education	3
			<u>23</u>
Total Required Credits			66
Total Required Contact Hours			990

Area of Emphasis: Pre-Hospital Emergency Medical Services Management

			Credits
MAN	117	Time Management	1
MAN	120	Office Management	3
MAN	200	Human Resources Management	3
MAN	226	Principles of Management	3
MAR	108	Principles of Salesmanship	3
MAR	217	Principles of Purchasing	3
EMS	227	Emergency Medical Technician/Basic	6
		and	
MAN	XXX	(Management electives selected with the approval of the program advisor)	6
		or	
EMS	237	Paramedic Technician	12
			<u>28</u>
Total Required Credits			71
Total Required Contact Hours			1065

Area of Emphasis: Production Management

			Credits
BUS	226	Business Statistics	3
		or	
MAT	135	Introduction to Statistics	
PRM	211	Production Management I	3
PRM	212	Production Management II	3
MAN	239	Business Policies	3
MAN	200	Human Resources Management	3
MAN	117	Time Management	1
MAN	225	Managerial Finance	3
MAR	217	Principles of Purchasing	3
MAN	XXX	Management electives (selected with the approval of program advisor)	
		or	
PRM	297	Cooperative Education	3
			<u>25</u>
Total Required Credits			68
Total Required Contacts Hours			1020

Area of Emphasis: Public Administration

			Credits
ACC	216	Governmental Accounting	3
MAN	120	Office Management	3
MAN	200	Human Resources Management	3
MAN	117	Time Management	1
MAR	219	Public Relations Management	3
MAR	217	Principles of Purchasing	3
PUA	105	Introduction to Public Administration	3
PUA	206	Administrative Law	2
PUA	225	Budgeting and Financial Resources	3
MAN	XXX	Management electives (selected with the approval of program advisor)	3
		or	
PUA	297	Cooperative Education	3
			<u>27</u>
Total Required Credits			70
Total Required Contact Hours			1050

Area of Emphasis: Purchasing Management

			Credits
MAN	210	Cost Effective MRO Buying	3
MAN	211	Inventory Management	3
MAN	212	Negotiation and Conflict Resolution	3
MAN	218	Ethics and Successful Business	3
MAN	226	Principles of Management	3
MAR	108	Principles of Salesmanship	3
MAR	217	Principles of Purchasing	3
MAN	XXX	Management Electives (selected with the approval of program advisor)	
		or	
MAN	297	Cooperative Education	3
			24
Total Required Credits			67
Total Required Contact Hours			1005

Management Certificates

The management certificate is available with an emphasis in one of the following areas:

- Commercial Food Service Management
- Human Resources Management
- Management and Supervision
- Public Administration
- Purchasing Management
- Small Business Management

Note: See program advisor for restrictions on when certain classes are offered.

Commercial Food Service Management Certificate

			Credits
ACC	101	Fundamentals of Accounting I	3
BUS	110	Mathematics of Business/Personal Finance	3
BUS	217	Business Communications and Report Writing	3
RTA	101	Restaurant Arts I	12
		or	
CFS	297	Cooperative Education	
RTA	102	Restaurant Arts II	12
		or	
CFS	297	Cooperative Education	
MAN	116	Principles of Supervision	3
MAN	205	Small Business Management	3
		or	
MAR	215	Retail Management	
MAR	217	Principles of Purchasing	3
Total Required Credits			42
Total Required Contact Hours			630

Human Resources Management Certificate

			Credits
BUS	226	Business Statistics	3
MAN	200	Human Resources Management	3
MAN	212	Negotiation and Conflict Resolution	3
MAN	215	Organizational Behavior	3
MAN	216	Employee Recruiting and Training	3
MAN	217	Compensation and Employee Benefits Management	3
MAN	218	Ethics and Successful Business	3
MAN	219	Labor-Management Relations	3
MAN	XXX	Management electives (selected with the approval of program advisor)	6
		or	
MAN	297	Cooperative Education	3
			30
Total Required Credits			30
Total Required Contact Hours			450

Management and Supervision Certificate

			Credits
ACC	121	Accounting Principles I	4
BUS	110	Mathematics of Business/Personal Finance	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab) (or equivalent—with approval of program advisor)	5
MAN	116	Principles of Supervision	3
MAN	205	Small Business Management	3
		or	
MAN	226	Principles of Management	
MAR	216	Principles of Marketing	3
MAN	XXX	Management electives (selected with the approval of program advisor)	3
		or	
MAN	297	Cooperative Education	
Total Required Credits			31
Total Required Contact Hours			465

Public Administration Certificate

			Credits
ACC	121	Accounting Principles I	4
MAN	116	Principles of Supervision	3
MAN	200	Human Resources Management	3
MAN	117	Time Management	1
MAR	219	Public Relations Management	3
MAN	225	Managerial Finance	3
MAR	217	Principles of Purchasing	3
PUA	105	Introduction to Public Administration	3
PUA	206	Administrative Law	2
Total Required Credits			25
Total Required Contact Hours			375

Purchasing Management Certificate

			Credits
MAN	210	Cost Effective MRO Buying	3
MAN	211	Inventory Management	3
MAN	212	Negotiation and Conflict Resolution	3
MAN	218	Ethics and Successful Business	3
MAN	226	Principles of Management	3
MAR	108	Principles of Salesmanship	3
MAR	217	Principles of Purchasing	3
MAN	XXX	Management Electives (selected with the approval of program advisor)	
		or	
MAN	297	Cooperative Education	3
			24
Total Required Credits			24
Total Required Contact Hours			360

Small Business Management Certificate

			Credits
SBM	101	Starting a Small Business	1
SBM	102	Managing a Small Business	1
SBM	105	Financing a Small Business	1
SBM	107	Recordkeeping for a Small Business	1
SBM	109	Analyzing Financial Statements Used in Small Business	1
SBM	115	Marketing for a Small Business	1
SBM	206	Legal Aspects of a Small Business	1
XXX		Electives (selected from list below)	11
Total Required Credits			18
Total Required Contact Hours			270

Electives (select 11 credits from the following list):

ACC	101	Fundamentals of Accounting I	3
		or	
ACC	121	Principles of Accounting I	4
COM	115	Cooperative Education Seminar	1
ECO	119	Applied Economics	1
MAN	297	Cooperative Education	1
MAR	219	Public Relations Management	3
SBM	116	Sales Techniques for the Entrepreneur	1
SBM	118	Starting and Marketing a Professional Service	1
SBM	119	Purchasing, Pricing and Inventory Control	1
SBM	130	Business Writing Skills for the Entrepreneur	1
SBM	210	Trends in American Business	1
SBM	215	Managing Human Resources in a Small Business	1
SPE	290	Special Topics: Effective Business Speaking	2

Marketing

Degree: Associate of Applied Science
Certificate: Variable Credits

Business organizations are always looking for people who can help them achieve their goals. Training in marketing helps increase an individual's opportunity for advancement within a corporate or administrative structure. Both large and small businesses stress the need for academic preparation in addition to work experience. Depending upon the managerial level, advanced degrees may be required.

Associate of Applied Science

The Associate of Applied Science degree is available in one of the following areas of emphasis:

- Hospitality, Tourism and Travel
- International Trade and Commerce
- Marketing
- Real Estate

Required Marketing Degree Requirements (for all areas of emphasis)

			Credits
Note: See program advisor for restrictions on when certain classes are offered.			
ACC	121	Principles of Accounting I	4
BUS	110	Mathematics of Business/Personal Finance	3
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
MAN	116	Principles of Supervision	3
MAR	216	Principles of Marketing	3
Total Required Credits			28

General Education Requirements (for all areas of emphasis)

ECO	201	Principles of Macroeconomics	3
ENG	121	English Composition I	3
MAT	100	Introductory Algebra or higher	3

Humanities (ART, FRE, GER, HUM, LIT, PHI, SPA, MUS, THE)

3

or

Science (AST, BIO, CHE, GEY, PHY)

Credit from any of the five following areas:

3

English/Speech (COM, ENG, REA, SPE)

Humanities (ART, FRE, GER, HUM, LIT, PHI, SPA, MUS, THE)

Mathematics (101 or above)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Total General Education Credits 15

Note: All general education courses must be selected with the approval of the program advisor. Substitutes to the general education requirements may be made only with the approval of the program advisor.

Area of Emphasis: Hospitality, Tourism and Travel

HTT	105	Introduction to Travel and Tourism	3
HTT	106	Travel Geography	3
HTT	107	Group Tour Development	3
HTT	108	Convention and Meeting Planning	3
HTT	111	Introduction to Computer Reservations	3
HTT	112	Advanced Computer Reservations	3
HTT	215	Travel Agency Operations/Management	3
MAR	108	Principles of Salesmanship	3
XXX		Business-related electives (selected with the approval of program advisor)	3
			<u>27</u>

Electives (the following are recommended electives)

HTT	109	Introduction to Hotels	3
HTT	110	Hotel/Motel Management	3

Total Required Credits 70
Total Required Contact Hours 1050

Area of Emphasis: International Trade and Commerce

ITC	105	Introduction to International Business	3
ITC	106	Exporting and International Transportation	3
ITC	108	Importing and Customs Regulations	3
ITC	111	Introduction to International Trade Organizations	3
ITC	201	International Marketing	3
ITC	205	Multicultural Dynamics	3
ITC	207	International Finance	3
ITC	249	International Trade and Commerce Management	3
GEO	105	World Regional Geography	3
		or	
GEO	106	Human Geography	3

Electives (the following are recommended electives): 3

- foreign language (strongly recommended)
 - work co-op
 - pertinent course approved by faculty advisor
- 3

Total Required Credits 73
Total Required Contact Hours 1095

Area of Emphasis: Marketing

MAR	108	Principles of Salesmanship	3
MAR	109	Advertising and Promotion	3
MAR	115	Visual Merchandising	3
MAR	214	Wholesaling and Distribution	3
		or	
MAR	215	Retail Management	3
MAR	217	Principles of Purchasing	3
MAR	218	Sales Management	3
		or	
MAR	219	Public Relations Management	3
MAR	XXX	Business-related electives (selected with the approval of program advisor)	3
		or	
MAR	297	Cooperative Education	3
			<u>27</u>

Total Required Credits 70
Total Required Contact Hours 1050

Area of Emphasis: Real Estate

MAN	117	Time Management	1
MAN	205	Small Business Management	3
MAN	226	Principles of Management	3
REE	110*	Real Estate Practice and Law	5
REE	105	Real Estate Finance and Advanced Real Estate Law	3
REE	217*	Colorado Real Estate Law and Contracts	3
REE	XXX	Real Estate electives (selected with the approval of program advisor)	12
			<u>30</u>

Total Required Credits 73
Total Required Contact Hours 1095

* Required for Real Estate License

Marketing Certificates

The marketing certificate is available with an emphasis in one of the following areas:

- Hospitality, Tourism and Travel
- International Trade and Commerce
- Marketing
- Real Estate

Note: See program advisor for restrictions on when certain classes are offered.

Hospitality, Tourism and Travel Certificate:

HTT	105	Introduction to Travel and Tourism	3
HTT	106	Travel Geography	3
HTT	107	Group Tour Development	3
HTT	108	Convention and Meeting Planning	3
HTT	111	Introduction to Computer Reservations	3
HTT	112	Advanced Computer Reservations	3
HTT	215	Travel Agency Operations/Management	3
MAR	108	Principles of Salesmanship	3
XXX		Business-related electives (selected with the approval of program advisor)	6

Electives (the following are recommended electives)

HTT	109	Introduction to Hotels	3
HTT	110	Hotel/Motel Management	3

Total Required Credits 30
Total Required Contact Hours 450

International Trade and Commerce Certificate:

			Credits
ITC	105	Introduction to International Business	3
ITC	106	Exporting and International Transportation	3
ITC	108	Importing and Customs Regulations	3
ITC	111	Introduction to International Trade Organizations	3
ITC	201	International Marketing	3
ITC	205	Multicultural Dynamics	3
ITC	207	International Finance	3
ITC	249	International Trade and Commerce Management	3
One of the following geography courses:			3
GEO	105	World Regional Geography	
GEO	106	Human Geography	

Electives (the following are recommended electives) 3

- foreign language (strongly recommended)
- work co-op
- pertinent course approved by faculty advisor

Total Required Credits	30
Total Required Contact Hours	450

Marketing Certificate:

			Credits
ACC	121	Principles of Accounting I	4
BUS	110	Mathematics of Business/Personal Finance	3
BUS	216	Legal Environment of Business	4
BUS	217	Business Communications and Report Writing	3
CIS	118	Microcomputer Applications (Required Lab)	5
MAR	108	Principles of Salesmanship	3
MAR	109	Advertising and Promotion	3
MAR	216	Principles of Marketing	3
MAR	XXX	Business-related electives (selected with the approval of program advisor) or	3
MAR	297	Cooperative Education	3
Total Required Credits			31
Total Required Contact Hours			465

Real Estate Certificate

			Credits
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	4
CIS	118	Microcomputer Applications (Required Lab)	5
REE	105	Real Estate Finance	3
REE	110*	Real Estate Practice and Law	5
REE	209	Real Estate Closings	3
REE	217*	Colorado Real Estate Law and Contracts	3
			26
Electives (Select 6 credits from the following courses):			
MAR	108	Principles of Salesmanship	3
REE	205	Real Estate Appraisal	3
REE	210	Real Estate Tax Factors	3
REE	216	Real Estate Listings and Selling Techniques	3
REE	297	Cooperative Education	3
Total Required Credits			32
Total Required Contact Hours			480

* Required for Real Estate License

Mathematics

Associate of Science Degree With an Emphasis in Mathematics

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in mathematics. This program provides basic preparation leading to science-related careers as well as to teaching mathematics.

The following sequence of course work is appropriate for students planning to major in mathematics at a four-year college or university.

Note: Students should consult with a Red Rocks Mathematics faculty advisor before beginning any program of study.

SUGGESTED SEQUENCE for full-time students

Note: This is a suggested sequence for completing the degree. Part-time students will take longer to complete the sequence. Some courses might not be offered each session.

First Session (Fall)			Credits
ENG	121	English Composition I (core)	3
MAT	201	Calculus I (core)	5
Humanities Core Elective			3
Social/Behavioral Science Core Elective			3

Second Session (Spring)			Credits
ENG	122	English Composition II (core)	3
MAT	202	Calculus II (core)	5
Humanities Core Elective			3
Social/Behavioral Science Core Elective			3

Third Session (Fall)			Credits
SPE	115	Principles of Speech Communication (core)	3
MAT	203	Calculus III	4
Computer Science Elective			4
Science Core Elective			5

Fourth Session (Spring)			Credits
MAT 255 and/or MAT 265			3-6
Science Core Elective			5
Transferable Electives			8-3

Total Required Credits: 60-63

Transferable Electives must be selected from college-level transfer courses. No more than three credits in physical education will count towards the degree.

Students planning to major in mathematics at a four-year college or university will find MAT 201 Calculus I is the first (lowest level) mathematics course in which the credits earned will count toward a B.A. or a B.S. degree. Entering students who are not prepared to take MAT 201 will need to take the pre-requisite course(s); they should not expect the credits earned in the pre-requisite course(s) to count toward a B.A. or a B.S. degree.

Multimedia Technology Cluster

(Consists of GAT, FVT, PDT AND MTC) (approval pending)

Three degrees are offered: **Associate of Applied Sciences** – Designed for students who desire quick entry into the workforce
Associate of General Studies – Designed for students who desire both work and transfer options
Associate of Arts – Designed for students who desire transfer to a 4-year institution

with Areas of Emphasis and Options in: **Graphics and Animation, Design and Production, Film/Video Technology**

General education requirements for the three degree programs offered for Multimedia Technology are listed below.		
Associate of Applied Sciences	Associate of General Studies	Associate of Arts
English/Speech 3 Recommend: ENG 121	English/Speech 6 Recommend: ENG 121, SPE 115	English/Speech 9 Recommend: ENG 121, 122 and SPE 115
Humanities, Science, Social and Behavioral Science 6 Recommend: MUS 120, THE 111, ART 110 and/or PHI 112	Humanities 3 Recommend: PHI 112, MUS 120, THE 111 or ART 110	Humanities 9 Recommend: ART 111, PH111
Mathematics 3 Recommend: MAT 121	Mathematics 3 Recommend: MAT 121	Mathematics 3 Recommend: MAT 121
Elective from above 3 Recommend: SPE 115	Science 3	Science 4
	Social and Behavioral Science 3 Recommend: SOC 101, POS 111 or POS 105	Social and Behavioral Science 9 Recommend: SOC 101 plus two other courses
15	18	34
Approximately 12 additional courses to total 60 credits Could include Co-op or Intern experience	Approximately 11 additional courses to total 60 credits Could include Co-op or Intern experience	5 or 6 additional courses to total 60 credits Could include Co-op or Intern experience

Multimedia Technology Required Courses (11 credits)		
Required for all Degree Candidates – Test-outs and Articulation Possible		
CIS 113	Introduction to Macintosh Computer	2
MTC 100	Multimedia Equipment and Technology (Lecture/Lab - 60 contact hours)	3
MTC 101	Introduction to Design and Graphics (Lecture/Lab - 60 contact hours)	3
MTC 201	Multimedia Production and Management (Lecture/Lab - 60 contact hours)	3

Associate of Applied Sciences

Graphics and Animation Technology	Production and Design Technology	Film/Video Technology
General Education Requirements 15	General Education Requirements 15	General Education Requirements 15
Multimedia Technology Cluster Curriculum Requirements	Multimedia Technology Cluster Curriculum Requirements	Multimedia Technology Cluster Curriculum Requirements
Major Courses	Major Courses	Major Courses
PDT 105 Computer Art Studio 3	PDT 105 Computer Art Studio 3	FVT 105 Video Production I 3
GAT 106 Adobe Illustrator 3	GAT 115 Color Theory 3	FVT 106 Production Management Techniques 3
GAT 115 Color Theory 3	GAT 120 Adobe Photoshop 3	FVT 150 Development of Film Expression 3
GAT 120 Adobe Photoshop 3	GAT 125 QuarkXPress 3	FVT 160 Video Equipment and Technology 3
GAT 125 QuarkXPress 3	PDT 150 Computer Presentation Graphics 3	FVT 200 Video Production II 3
GAT 127 Computer Typography or Electronic Prepress 3	ART 151 Photography I 3	FVT 205 Film/Video Camera Equipment 3
PDT 150 Computer Presentation Graphics 3	PDT 210 Sound Design for Multimedia 3	FVT 206 Film/Video Lighting/Grip 3
GAT 201 Animation and Rendering 3	PDT 220 Multimedia Development 3	FVT 208 Sound for Film and Video 3
GAT 220 Adobe Photoshop II 3	FVT 254 Introduction to Digital Editing (Adobe Premiere) 3	FVT 215 Video Editing and Post-Production 3
GAT 290 Special Topics 3 (With advisor permission students may select two courses from other Multimedia options.)	PDT 290 Special Topics 3 (With advisor permission students may select two courses from other Multimedia options.)	FVT 254 Introduction to Digital Editing (Adobe Premiere) 3
GAT 297 Cooperative Education 3 or more <i>Plus one applied creative course other than those listed</i> 3	PDT 297 Cooperative Education 3 or more <i>Plus one applied creative course other than those listed</i> 3	FVT 297 Cooperative Education FVT 299 Independent Study 3 (With advisor permission students may select two courses from other Multimedia options.)

Multimedia Technology Cluster

Associate of General Studies

Graphics and Animation Technology

General Education Requirements	18
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
PDT 105 Computer Art Studio	3
GAT 106 Adobe Illustrator	3
GAT 115 Color Theory	3
GAT 120 Adobe Photoshop	3
GAT 125 QuarkXPress	3
GAT 127 Computer Typography or Electronic Prepress	3
PDT 150 Computer Presentation Graphics	3
GAT 201 Animation and Rendering	3
GAT 220 Adobe Photoshop II	3
GAT 290 Special Topics	3
(With advisor permission students may select two courses from other Multimedia options.)	
GAT 297 Cooperative Education	3 or more
<i>Plus one applied creative course other than those listed</i>	
	3

Production and Design Technology

General Education Requirements	18
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
PDT 105 Computer Art Studio	3
GAT 115 Color Theory	3
GAT 120 Adobe Photoshop	3
GAT 125 QuarkXPress	3
PDT 150 Computer Presentation Graphics	3
ART 151 Photography I	3
PDT 210 Sound Design for Multimedia	3
PDT 220 Multimedia Development	3
FVT 254 Introduction to Digital Editing (Adobe Premiere)	3
PDT 290 Special Topics	3
(With advisor permission students may select two courses from other Multimedia options.)	
PDT 297 Cooperative Education	3 or more
<i>Plus one applied creative course other than those listed</i>	
	3

Film/Video Technology

General Education Requirements	18
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
FVT 105 Video Production I	3
FVT 106 Production Management Techniques	3
FVT 150 Development of Film Expression	3
FVT 160 Video Equipment and Technology	3
FVT 200 Video Production II	3
FVT 205 Film/Video Camera Equipment	3
FVT 206 Film/Video Lighting/Grip	3
FVT 208 Sound for Film and Video	3
FVT 215 Video Editing and Post-Production	3
FVT 254 Introduction to Digital Editing (Adobe Premiere)	3
FVT 297 Cooperative Education	
FVT 299 Independent Study	3
(With advisor permission students may select two courses from other Multimedia options.)	

Associate of Arts

Graphics and Animation Technology

General Education Requirements	34
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
PDT 105 Computer Art Studio	3
GAT 106 Adobe Illustrator	3
GAT 115 Color Theory	3
GAT 120 Adobe Photoshop	3
GAT 125 QuarkXPress	3
GAT 127 Computer Typography or Electronic Prepress	3
PDT 150 Computer Presentation Graphics	3
GAT 201 Animation and Rendering	3
GAT 220 Adobe Photoshop II	3
GAT 290 Special Topics	3
(With advisor permission students may select two courses from other Multimedia options.)	
GAT 297 Cooperative Education	3 or more
<i>Plus one applied creative course other than those listed</i>	
	3

Production and Design Technology

General Education Requirements	34
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
PDT 105 Computer Art Studio	3
GAT 115 Color Theory	3
GAT 120 Adobe Photoshop	3
GAT 125 QuarkXPress	3
PDT 150 Computer Presentation Graphics	3
ART 151 Photography I	3
PDT 210 Sound Design for Multimedia	3
PDT 220 Multimedia Development	3
FVT 254 Introduction to Digital Editing (Adobe Premiere)	3
PDT 290 Special Topics	3
(With advisor permission students may select two courses from other Multimedia options.)	
PDT 297 Cooperative Education	3 or more
<i>Plus one applied creative course other than those listed</i>	
	3

Film/Video Technology

General Education Requirements	34
Multimedia Technology Cluster Curriculum Requirements	
Major Courses	
FVT 105 Video Production I	3
FVT 106 Production Management Techniques	3
FVT 150 Development of Film Expression	3
FVT 160 Video Equipment and Technology	3
FVT 200 Video Production II	3
FVT 205 Film/Video Camera Equipment	3
FVT 206 Film/Video Lighting/Grip	3
FVT 208 Sound for Film and Video	3
FVT 215 Video Editing and Post-Production	3
FVT 254 Introduction to Digital Editing (Adobe Premiere)	3
FVT 297 Cooperative Education	
FVT 299 Independent Study	3
(With advisor permission students may select two courses from other Multimedia options.)	

Occupational Safety Technology

(In cooperation with Trinidad State Junior College)

**Degree: Associate of Applied Science
Certificate: 30 Credits**

The Occupational Safety Technology program is designed to provide occupational safety training to both pre-service students and in-service professionals. As a comprehensive industry-oriented program, this curriculum is established to provide knowledge and training skills in safety applications as they relate to the industrial field.

Note: Occupational Safety students cannot register through the Red Rocks phone registration system. You must meet and register directly with the Occupational Safety Department Coordinator.

Required Major Courses Credits

First Session (Fall)

OSH	110	Fire Protection	2
OSH	130	Construction Standards	5
ENG	121	English Composition I	3
CIS	115	Introduction to Computers (Required Lab)	5
		or	
CIS	118	Microcomputer Applications (Required Lab)	5
OSH	202	Accident Prevention	2
			<u>17</u>

Second Session (Spring)

OSH	111	Fire Analysis	2
OSH	131	General Industry Standards	5
OSH	196	Safety Program Planning and Administration	3
HEO	104	Anatomy for Health Occupations	4
SPE	115	Principles of Speech Communication	3
			<u>17</u>

Third Session (Fall)

OSH	200	Hazardous Material Control	2
OSH	201	Worker's Compensation Cost Containment	2
OSH	203	Ergonomics: Managing Task Stress	3
MAT	102	General Mathematics for College Students	1-5
PHY	105	Conceptual Physics	4
			<u>14</u>

Fourth Session (Spring)

OSH	230	First Aid	2
OSH	240	Case Study Evaluation	5
OSH	207	Industrial Hygiene	3
OSH	250	Safety Training Methods	2
OSH	261	Independent Study	2
			<u>14</u>

Total Required Credits 63

A minimum of two credits of elective courses will be chosen from the following on the recommendation of the advisor.

CHE	101	Introduction Chemistry I	5
EST	102	Environmental Regulatory Framework	3
EST	104	Health and Safety Applications (HAZWOPER)	3
EST	111	Chemistry of Hazardous Materials I	3
EST	203	RCRA Compliance	3
EST	215	Field Sampling and Lab Analysis	3
EST	225	Air Toxics and Pollution Control	3
EST	230	Hazmat Response and Emergency Planning	3
EST	235	Hazmat Transportation	3
OSH	255	Instrument Laboratory	2
OSH	264	Process Safety Management	2
OSH	270	Environmental and Safety Auditing	3
OSH	275	Mine Safety and Health Standards	2
OSH	290	Occupational Safety Internship	5-18
WQM	100	Introduction to Water Quality Management	3

Occupational Safety Technology Certificate

The Occupational Safety Technology Certificate program is designed to provide students with knowledge and training skills in industrial safety applications. It is recommended that students obtaining an Occupational Safety Certificate have five or more years of working experience in the safety field.

Required Major Courses Credits

OSH	130	Construction Standards	5
OSH	131	General Industry Standards	5
OSH	196	Safety Program Planning	5
OSH	200	Hazardous Material Control	2
OSH	202	Accident Prevention	2
OSH	240	Case Study Evaluation	5
OSH	250	Safety Training Methods and Administration	5
FST/OSHXXX		Choose from OSH 110, 111 or FST classes chosen in conjunction with your advisor.	3
OSH	XXX	Elective chosen from degree program electives.	3

Total Required Credits 30

Paramedic Technician Program

Degree: Associate of Applied Science

Completion of this curriculum will allow individuals to enter a career in Paramedic Technology. As a paramedic, career opportunities are available in public and private pre-hospital emergency care such as fire and ambulance services and management of the same.

Required Major Courses			Credits
BIO	201	Human Anatomy and Physiology I	4
BIO	203	Human Anatomy and Physiology II	4
CHE	101	Introduction to Chemistry I	5
EMS	227	Emergency Medical Technician—Basic	8
HEO	210	Pathophysiology for Health Occupations	4
HEO	220	Pharmacology for Health Occupations	3
			28

General Education Requirements

ENG	131*	Technical Writing	3
PSY	101	General Psychology I	3
MAT	100	Introductory Algebra (or higher level course)	3
SOC	101	Introduction to Sociology I	3
SPE	125	Interpersonal Communication	3
			15

Electives (two courses selected from the following): 6

ANT	101	Cultural Anthropology	
ENG	121	English Composition I	
MAN	116	Principles of Supervision	
MAN	226	Principles of Management	
SOC	215	Contemporary Social Problems	

The following course will be taken at St. Anthony Hospital Central:

EMS	237**	Paramedic Technician	23
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Total Required Credits 72

* Requires satisfactory score on placement test.

** One year active field experience as an EMT with a first responding agency is required.

Park Ranger Technology

Degree: Associate of Applied Science
Certificate: Variable Credits

The Park Ranger Training Program provides training for students seeking careers in natural resource protection, interpretation and management. Law Enforcement, natural resource interpretation, public safety services and outdoor recreation/education are the major areas of concentration reflecting the needs of the industry and potential employment in all levels of government as well as private companies.

The Associate of Applied Science Degree and the certificate programs are designed around the hiring agencies requirements and also to allow the student to design a program around specific interests, career goals and previous training or education.

Required Major Courses			Credits
BIO	111	General College Biology I	5
BIO	112	General College Biology II	5
FST	152	Basic Wildland Firefighting	3
FST	253	Incident Command of Major Incidents	3
GEY	111	Physical Geology	4
HIS	201	U.S. History I	3
HIS	202	U.S. History II	3
PAR	102	Introduction to Park Ranger Technology	3
PAR	297	Park Ranger Internship	3
			32

General Education Requirements

English/Speech

ENG	121	English Composition I	3
SPE	115	Principles of Speech Communication	3
or			
SPE	125	Interpersonal Communication	3

Mathematics

MAT	121	College Algebra	4
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Science

BIO	227	Ecology	4
or			
ENV	101	Introduction to Environmental Science	4

Social and Behavioral Sciences

PSY	101	General Psychology I	3
			16

Electives**10-12****Fire/Public Safety Electives**

EMS	227	Emergency Medical Technician (Basic)	8
FST	121	Rope Rescue Module I	1
FST	122	Rope Rescue Module II	1
FST	123	Rope Rescue Module III	1
FST	258	Wildland Fire Incident Management and Organization	3
FST	261	Fire Operations in Urban Interface	3
PAR	127	Wilderness First Aid	3

Interpretation Electives

BIO	199	Plants of the Front Range	3
BIO	227	Ecology	4
BIO	228	Field Biology	2
ENV	101	Introduction to Environmental Science	4
GEY	135	Environmental Geology	3
GEY	203	Map and Airphoto Interpretation	3
GEY	205	Geology of Colorado	
GEY	208	Geology Field Trip	2-3
HIS	116	The Native American Experience	3
HIS	225	History of Colorado	3
PAR	203	Natural Resource Management	3
PAR	205	Resource Interpretation	3

Law Enforcement Electives

CRJ	XXX	Post Law Enforcement Academy	24
PAR	230	Natural Resource Law	6

Outdoor Skills Electives

PHE	170	Cross Country Skiing	2
PHE	180	Mountaineering I	3
PHE	181	Basic Rock Climbing	2
PHE	182	Intermediate Rock Climbing	2
PHE	183	Basic Ice Climbing	2
PHE	185	Snow and Glacier Climbing	3
PHE	186	Orienteering	2
PHE	187	Map and Compass for the Outdoors	3
PHE	188	Backpacking	2
PHE	190	Snowshoeing	1
PHE	218	Outdoor Recreation and Camping	2
PHE	220	Wilderness Dangers	3
PHE	225	Routefinding	1
PHE	226	Wilderness Ethics	2
PHE	227	Basic Mountaineering II	3
PHE	228	Wilderness Ethics	2
PHE	229	Wilderness Survival I	3
PHE	259	Wilderness Survival II	3

Park Ranger Certificate: Law Enforcement Concentration

The Law Enforcement Certificate is for those students wishing to increase their job opportunities by being qualified for full law enforcement responsibilities in the field.

			Credits
CRJ	XXX	Post Law Enforcement Academy	24
PAR	102	Introduction to Public Lands/Park Ranger Services	3
PAR	230	Natural Resource Law	6
PAR	297	Park Ranger Internship	3
			<hr/> 36

Park Ranger Certificate: Outdoor Recreation Concentration

The Outdoor Recreation Certificate provides a wide choice for those wishing to become employed as guides, outdoor instructors, safety personnel or rangers with both governmental and private agencies.

			Credits
PAR	105	Introduction to Park Ranger Technology	3
PAR	205	Resource Interpretation	3
PAR	227	Park Ranger Internship	3

Credit from the following areas:

			21
PHE	170	Cross Country Skiing	2
PHE	180	Mountaineering I	3
PHE	181	Basic Rock Climbing	2
PHE	182	Intermediate Rock Climbing	2
PHE	183	Basic Ice Climbing	2
PHE	185	Snow and Glacier Climbing	3
PHE	186	Orienteering	2
PHE	187	Map and Compass for the Outdoors	3
PHE	188	Backpacking	2
PHE	190	Snowshoeing	1
PHE	218	Outdoor Recreation and Camping	2
PHE	220	Wilderness Equipment and Facilities	3
PHE	225	Routefinding	1
PHE	226	Wilderness Dangers	1
PHE	227	Basic Mountaineering II	3
PHE	228	Wilderness Ethics	2
PHE	229	Wilderness Survival I	3
PHE	259	Wilderness Survival II	3
			<hr/> 30

Park Ranger Certificate: Public Safety Concentration

The Public Safety Certificate provides necessary training for those students wanting to work for agencies providing fire, EMS, rescue, hazardous materials or other response/mitigation services.

			Credits
PAR	102	Introduction to Park Ranger Technology	3
PAR	227	Park Ranger Internship	3
FST	130	Intro to Wildland Firefighting	3
FST	151	Hazardous Mat. Awareness and Opns.	3
FST	230	Wildland Fire Incident Mgmt and Org.	3
FST	236	Fire Operations in the Urban Interface	1
EMS	227	Emergency Medical Technician (Basic)	8
FST	253	Incident Command at Major Incidents	3
FST	121	Rope Rescue Module I	1
FST	122	Rope Rescue Module II	1
FST	123	Rope Rescue Module III	1
PHE	226	Wilderness Dangers	3
PHE	229	Wilderness Survival I	3
			34

Park Ranger Certificate: Resource Interpretation Concentration

The Resource Interpretation Certificate is for those working with resource interpretation, naturalist or other nature center work with the public.

			Credits
BIO	111	General College Biology I	5
BIO	112	General College Biology II	5
BIO	227	Ecology	4
BIO	228	Field Biology	2
GEY	111	Physical Geology	4
HIS	201	U.S. History I	3
HIS	202	U.S. History II	3
PAR	102	Introduction to Park Ranger Technology	3
PAR	203	Natural Resource Management	3
PAR	205	Resource Interpretation	3
PAR	227	Park Ranger Internship	3
			35

Physics

Degree: Associate of Science With an Emphasis in Physics

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in physics.

Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
CHE	111	General College Chemistry I (Core)	5
CHE	112	General College Chemistry II (Core)	5
CSC	160	Computer Science I (Required Lab)	5
or			
CIS	148	FORTRAN Programming (Required Lab)	4
MAT	201	Calculus I (Core)	5
MAT	202	Calculus II (Core)	5
MAT	203	Calculus III	4
PHY	211	Physics: Calculus-based I (Core)	5
PHY	212	Physics: Calculus-based II (Core)	5

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

**Humanities* (any two courses from the following) 6-10
 ART 111, 112; Foreign Language 111, 112, 211, 212;
 HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212

Social and Behavioral Sciences (courses from two different disciplines) ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

Electives

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Required Credits	61-69
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* Students are encouraged to complete GER 111 and 112 to satisfy the Arts and Humanities requirement.

Plumbing

(See Construction Technology.)

Political Science

Degree: Associate of Arts With an Emphasis in Political Science

Political science is the study of how political systems are created, the nature of the social contracts between people and governments, political parties, political behavior and the evolution of political institutions. The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in political science.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses			Credits
ECO	201	Principles of Macroeconomics	3
ECO	202	Principles of Microeconomics	3
HIS	201	U. S. History I	3
HIS	202	U. S. History II	3
POS	105	Introduction to Political Science	3
POS	111	American Government	3
POS	215	Current Political Issues	3

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Humanities</i> (courses from two different disciplines)	9
ART 111, 112; Foreign Language 111, 112, 211, 212;	
HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122;	
PHI 111, 112, 113; THE 211, 212	

<i>Mathematics</i> (any course from the following)	3
MAT 121, 125, 135, 201, 202	

<i>Science</i> (any course from the following)	4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112;	
GEY 111, 121; PHY 105, 111, 112, 211, 212	

Electives	14
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.	

Total Required Credits **60**

Precision Joining Technology

Degree: Associate of General Studies

Red Rocks Community College and the Precision Joining Center cooperatively offer a complete curriculum in Joining Technologies that includes arc welding processes, high energy beam welding processes and resistance and other joining processes. This experimental industry partnership includes courses that are divided into classroom-based training and equipment-based training. Several courses are offered at the Precision Joining Center in Wheat Ridge. Approval of Red Rocks Community College Welding Fabrication Technology instructor required for entry into this program.

Required Major Courses			Credits
PJT	201	Joining Metallurgy	3
PJT	202	Process Variable Effects in Arc Welding	3
PJT	203	Process Variable Effects in Beam Welding	3
PJT	204	Resistance and Nonfusion Joining Processes	3
PJT	205	Weldment Design and Properties for Structural Members	3
PJT	206	Weld Defects—Formation, Detection and Control	3
PJT	207	Joining Procedure Development and Quality Control	3
PJT	208	Production Problem Analysis	3
PJT	209	Automated Welding Controls and Measurements	3
PJT	250	Automated Arc and Beam Welding Lab II	2
PJT	251	Automated Arc Welding Lab II	2
PJT	252	Beam Welding Lab II	2
			<hr/> 33

Additional Required Courses

WFT	100	Oxy-acetylene Safety, Cutting and Welding	3
WFT	115	Plate Code Testing E7018 With Backing Strip	3
WFT	118	Special Applications in Arc Welding	3
WFT	207	Gas Tungsten Arc Welding	3
			<hr/> 12

Recommended Courses

PJT	250	Automated Arc and Beam Welding Lab I	2
PJT	251	Automated Arc Welding Lab II	2
PJT	252	Beam Welding Lab II	2
			<hr/> 6

General Education Requirements

<i>English/Speech</i> (ENG 121 and SPE 115 or SPE 125)	6
<i>Humanities</i> (Art History, Foreign Languages, Humanities, Appreciation or History of Music, Philosophy, Literature, Theatre)	3
<i>Mathematics</i> (121 or above)	3
<i>Science</i> (AST, BIO, CHE, GEY, PHY)	3
<i>Social and Behavioral Sciences</i> (ANT, ECO, GEO, HIS, POS, PSY, SOC)	3
	<hr/> 18

Total Required Credits **63**

Pre-Engineering

Associate of Science Degree with an Emphasis in Pre-Engineering

The college offers courses that will transfer to many of the four-year institutions including Colorado State University, Colorado School of Mines and the University of Colorado at Boulder and Denver. All transfer students are subject to a minimum grade point average of 3.0 (B) or better to compete successfully for admission to these institutions. No single criterion for admission is used; however, the most important factor is scholastic achievement.

Note: Students are urged to consult with a Red Rocks Pre-Engineering/ Mathematics faculty advisor before beginning any program of study.

General Education Requirements (minimum 33 Credits)

	Credits
<i>English/Speech</i>	9
<i>Science</i>	8
ENG 121 English Composition I	3
ENG 122 English Composition II	3
SPE 115 Principles of Speech Communication.	3

Social and Behavioral Sciences—ANT,ECO,GEO

Humanities—ART, FRE, GER, HUM, LIT, HIS, POS, PSY, SOC, MUS, PHI, SPA, THE
(minimum required—6 credits from two)

Mathematics (minimum required—10 credits)

Area of Emphasis Recommendations

Take each of the following CHE, PHY, & MAT courses:

CHE 111	General College Chemistry I (core)	5
CHE 112	General College Chemistry II (core)	5
PHY 211	Physics: Calculus-based I (core)	5
PHY 212	Physics: Calculus-based II (core)	5
MAT 201	Calculus I (core)	5
MAT 202	Calculus II (core)	5

Take two of the following CSC courses:

CSC 148	FORTRAN Programming	4
CSC 160	Computer Science I	4
CSC 161	Computer Science II	4
CSC 230	C Language Programming	4
CSC 231	Advanced C Language Programming	4

Transferrable Electives:

The number of semester credits of transferable electives will vary depending upon the number of semester credits taken within the Core. Electives must be selected from college-level transfer courses. No more than three semester credits in physical education will count toward the degree.

Associate of Science

Note: This is a suggested sequence for full-time students completing the degree. Part-time students will take longer to complete the sequence. Some courses might not be offered each session.

First Session—Fall			Credits
CHE 111	Gen. College Chemistry I		5
CHE 111	Gen. College Chemistry I Lab		
ENG 121	English Composition I		3
MAT 201	Calculus I		5
Core	Social/Behavioral Science Elective		<u>3</u>
			16

Second Session—Spring

CHE 112	Gen College Chemistry II		5
CHE 112	Gen College Chemistry II Lab		
ENG 122	English Composition II		3
MAT 202	Calculus II		5
Core	Social /Behavioral Science Elective		<u>3</u>
			16

Third Session—Fall

PHY 211	Physics: Calculus-based I		5
PHY 211	Physics: Calculus-based I Lab		
SPE 115	Principles of Speech Communication.		3
Core	Humanities Elective		3
CSC XXX	Computer Science Elective		<u>4</u>
			15

Fourth Session—Spring

PHY 212	Physics: Calculus-based II		5
PHY 212	Physics: Calculus-based II Lab		
Core	Humanities Elective		3
CSC XXX	Computer Science Elective		4
Transferable Elective *			<u>3</u>
			15

Total Required Credits **60—63**

* *Transferable Electives should be approved by the student's faculty advisor. No more than three semester credits in physical education will count toward the Associate of Science degree.*

Psychology

Associate of Arts Degree With an Emphasis in Psychology

The field of psychology is concerned with the study of normal and abnormal human behavior. Psychologists frequently provide personal counseling in hospitals, clinics, schools, corrections facilities or in their own private practices. Experimental psychologists work in laboratories and try to develop theories of why and how people behave as they do. The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in psychology.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		Credits	
PSY	101	General Psychology I	3
PSY	102	General Psychology II	3

Choose from one of the following:

PSY	226	Social Psychology	3
		or	
PSY	235	Human Growth and Development	3
		or	
PSY	238	Child Development	3
		or	
		Social and Behavioral Sciences Electives (approved by faculty advisor)	3

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Humanities</i> (courses from two different disciplines)	9
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212	

<i>Mathematics</i> (any course from the following)	3
MAT 121, 125, 135, 201, 202	

<i>Science</i> (any course from the following)	4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212	

<i>Social and Behavioral Sciences</i> (any course from the following)	3
ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; SOC 101, 102	

Electives	14
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.	

Total Credits	60
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Sociology

Associate of Arts Degree With an Emphasis in Sociology

Sociology is the study of groups of people and the way they interact. The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in sociology.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		Credits	
SOC	101	Introduction to Sociology I (Core)	3
SOC	102	Introduction to Sociology II (Core)	3
SOC	215	Contemporary Social Problems	3
SOC	XXX	Electives to be selected from the sociology curriculum	6

Core Curriculum Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3
SPE	115	Principles of Speech Communication	3

<i>Humanities</i> (courses from two different disciplines)	9
ART 111, 112; Foreign Language 111, 112, 211, 212; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212	

<i>Mathematics</i> (any course from the following)	3
MAT 121, 125, 135, 201, 202	

<i>Science</i> (any course from the following)	4
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 105, 111, 112, 211, 212	

<i>Social and Behavioral Sciences</i> (any course from the following)	3
ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102	

Electives	17
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.	

Total Credits	60
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Solar Energy Technology

(See Construction Technology and/or Energy Technologies.)

Speech Communications

Associate of Arts Degree With an Emphasis in Speech Communications

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in communications. This program provides basic preparation leading to communications-related careers such as sales, journalism, public relations, personnel, service and political careers, teaching and broadcasting.

Note: Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		Credits
SPE	111 Survey of Communication	3
	or	
SPE	125 Interpersonal Communications	
	or	
SPE	211 Advanced Public Speaking	
SPE	217 Group Communication	3
SPE	115 Principles of Speech Communication	3
SPE	220 Intercultural Communication	3
SPE	230 Argumentation and Debate	1-3
	or	
SPE	275 Forensics and Speech Competition	1-3
ENG	121 English Composition I	3
ENG	122 English Composition II	3

Core Curriculum Requirements

Humanities (courses from two different disciplines) 9
 ART 111, 112; Foreign Language 111, 112, 211, 212;
 HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113; THE 211, 212

Mathematics (any course from the following) 3
 MAT 121, 125, 135, 201, 202

Science (any course from the following) 4
 AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112;
 GEY 111, 121; PHY 105, 111, 112, 211, 212

Social and Behavioral Sciences (courses from two different disciplines) 9
 ANT 101, 111; ECO 201, 202; GEO 105;
 HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102;
 SOC 101, 102

Electives 14
 Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits 60

Theatre Arts

Associate of Arts Degree with an Emphasis in Theatre Arts

The completion of the following courses is appropriate for students who plan to transfer to a four year college or university to complete a major in theatre arts. This program provides basic preparation leading to theatre-related careers as well as to the teaching of theatre. Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		Credits
THE	105 Introduction to Theatre Arts	3
THE	111 Acting I	3
	or	
THE	112 Acting II	
	or	
THE	210 Singing for Actors	

Choose two courses from the following:

THE	131 Theatre Production I	
THE	132 Theatre Production II	
THE	231 Theatre Production III	
THE	232 Theatre Production IV	6
THE	116 Technical Theatre	3
THE	170 Dance and Stage Movement	
	or	
THE	271 Dance for the Musical Theatre	3
THE	211 Development of Theatre I (Core)	3
THE	212 Development of Theatre II (Core)	3

Core Curriculum Requirements

English/Speech

ENG	121 English Composition I	3
ENG	122 English Composition II	3
SPE	115 Principles of Speech Communication	3

Humanities (any course from the following) 3
 ART 111, 112; Foreign Language 111, 112, 211, 212;
 HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112, 113

Mathematics (any course from the following) 3
 MAT 121, 125, 135, 201, 202

Science (any course from the following) 4
 AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112;
 GEY 111, 121; PHY 105, 111, 112, 211, 212

Social and Behavioral Sciences (courses from two different disciplines) 9
 ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105, 111; PSY 101, 102; SOC 101, 102

Electives 8
 Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Credits 60

Transportation and Logistics Management

(Approval Pending)

Degree: Associate of Applied Science

The transportation and logistics industry accounts for 25 percent of the annual gross product. Students will combine business and management skills with work experience to prepare for numerous well paying career opportunities in this field. Opportunities are available in distribution management, purchasing, customer service, warehousing and inventory management, and domestic and international forwarding. Students may also transfer this degree to a four-year college and receive a bachelor's degree in Transportation and Logistics Management.

Suggested Course of Study:

First Session		Credits
*CIS	118 Microcomputer Applications	3
*ACC	121 Principles of Accounting I	4
TLM	110 Introduction to Logistics	3
SPE	115 Principles of Speech Communication	3
XXX	Suggested Electives	3
		16
Second Session		
*ACC	122 Principles of Accounting II	4
*BUS	217 Business Communications & Report Writing	3
TLM	205 Modes of Transportation	3
*ECO	201 Principles of Macroeconomics	3
XXX	Suggested Electives	3
		16
Third Session		
*BUS	216 Legal Environment of Business	4
*BUS	226 Business Statistics	3
GEO	105 World Regional Geography	3
TLM	290 Transportation/Logistics Internship	3
XXX	Suggested Electives	3
		16
Fourth Session		
+	*MAN 226 Principles of Management	3
*ECO	202 Principles of Microeconomics	3
+	*MAR 216 Principles of Marketing 3	3
XXX	Suggested Electives	6
		15
Total Required Credits		63

*Part of Business Transfer Agreement

+Principles of Marketing and Principles of Management will be accepted at four-year institutions provided that the community college student completes the prerequisites (i.e., two accounting courses, one economics course, and business statistics) and has sophomore standing before enrolling in either Principles of Marketing or Principles of Management.

Water Quality Management Technology

Degree: Associate of Applied Science

This program is designed to prepare individuals as technicians in the field of water and wastewater treatment. It also provides additional training for those already employed in the industry.

Required Major Courses		Credits
WQM	100 Introduction to Water Quality Management	3
WQM	105 Specific Calculations for Water Quality Management	4
WQM	119 Basic Water Quality Analysis	4
WQM	120 Water Quality Equipment Maintenance	4
WQM	126 Safety in the Water Quality Industry	3
WQM	200 Hydraulics for Water Quality Management	4
WQM	206 Design Interpretation of Water Quality System	4
WQM	210 Advanced Water Quality Analysis	4
WQM	216 Biological and Bacteriological Water Quality Analysis	4
WQM	217 Disinfection Techniques in Water Quality Systems	4
		38
Approved Electives		12
General Education Requirements		
ENG	131 Technical Writing	3
MAT	102 General Mathematics for College Students	3
POS	122 American State and Local Government	3
Credit from any two of the following three areas:		6
<i>Humanities</i> (ART, FRE, GER, HUM, LIT, MUS, PHI, THE)		
<i>Science</i> (AST, BIO, CHE, GEY, PHY)		15
Other Required Courses		
CIS	118 Microcomputer Applications (Required Lab)	5
Total Required Credits		69
Total Required Contact Hours		1255

Welding Fabrication Technology

Certificate: 32 Credits
Degree: Associate of Applied Science

This program provides job entry skills in the welding trade and upgrading for those in the field who need to acquire more skill. Demonstrated mastery of these skills is required. Programs are open-entry and open-exit. Students may complete some of the courses, enter the work force and then return at any time either to complete the program for a certificate or degree or to upgrade specific skills.

Required Major Courses			Credits
WFT	100*	Oxy-Acetylene Safety, Cutting and Welding	3
WFT	107*	Blueprint Reading and Estimating	3
WFT	108*	S.M.A.W. Safety Electrode Identification and Surface Padding	3
WFT	110*	S.M.A.W. Joints in Three Positions	3
WFT	115*	Plate Code Test E7018 With Backing Strip	3
WFT	116*	Plate Code Test E6010 Without Backing Strip	3
WFT	118	Special Applications in Arc Welding	3
WFT	200	Pipe Joint Design, Fabrication and Testing 2G	3
WFT	202	Pipe Test A.S.M.E., Section IX, E6010	3
WFT	207*	G.T.A.W. Safety and Welding Joints	3
WFT	209	G.M.A.W. Pipe and Plate Code Testing	3
WFT	210	Structural Shapes and Joint Design Project Development	3
WFT	235	Pipe Test A.S.M.E., Section IX, E6010 and E7018	3
WFT	236	Pipe Joint Design and Fabrication	3
			42

General Education Requirements

<i>English/Speech</i> (COM, ENG, SPE)	3
<i>Mathematics</i> (056 or above)	3

Credit from any two of the following three areas: 9

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE)

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

15

Total Required Credits	57
Total Required Contact Hours	1222

COM	115	The Job Search Process (1 credit) and
WFT	297	Cooperative Education (variable credit) or
WFT	299	Independent Study (variable credit)
May be used as an elective.		

* *Certificate Requirements*

C Course Descriptions

Course descriptions are listed in **alphabetical order by program**. Please refer to the current *Class Planning Schedule* for the list of courses offered each semester. Unless otherwise indicated, courses are normally offered each semester. The courses listed on the following pages are an indication of college course offerings; courses and programs are subject to modification at any time.

Corequisite

A corequisite is a course which must be taken in conjunction with another course during the same session, i.e. a laboratory is a corequisite to some computer, math and science courses.

Prerequisite

A prerequisite is a course which must be satisfactorily completed before taking the next higher level course. The prerequisite for a course may also be permission of instructor.

Special Topics Courses

Most program/course prefix areas offer special topics courses. These courses are numbered 290. Students should consult with their advisor regarding the applicability of these courses toward a degree or certificate. Descriptions are on file with the appropriate instructional dean.

ACCOUNTING

ACC Computer Lab Courses

Some accounting courses have a computer lab accompanying them. The lab is incorporated into the credits for its related course.

ACC 101 Fundamentals of Accounting I

3 Credits

This course presents the basic elements and concepts of accounting, with emphasis on the procedures used for maintaining journals, ledgers and other related records, and for the completion of end-of-period reports for small service and merchandising businesses.

ACC 102 Fundamentals of Accounting II

3 Credits

Prerequisite: ACC 101

This course is a continuation of ACC 101. Students are introduced to accounting for bad debts, promissory notes, inventory, plant and equipment, and partnership and corporate equity.

ACC 121 Principles of Accounting I

4 Credits

This course introduces the study of accounting principles and the theory and logic that underlie procedures and practices. Topics include the accounting cycle for service and merchandising companies; special journals and subsidiary ledgers, internal control principles and practices, notes and interest, inventory systems and costing, plant assets and intangible asset accounting, and depreciation methods and practices.

ACC 122 Principles of Accounting II

4 Credits

Prerequisite: ACC 121 or equivalent

This course is a continuation of ACC 121 and covers accounting principles as they apply to partnerships and corporations. Topics include stocks and bonds, investments, cash flow statements, financial analysis, budgeting and cost and managerial accounting.

ACC 125 Introduction to Electronic Spreadsheets

1 Credit

Prerequisite: CIS 110 or equivalent

This course introduces the basic concepts of electronic spreadsheets. Students prepare and modify several spreadsheets. Booting up the computer, cursor movement, data types, formatting, editing cells, protecting cells, pointing, copying, modifying the spreadsheet and printing are covered. Saving and retrieving files are also covered. Lotus 1-2-3 or other popular versions are used. *See the Course Planning Schedule.*

ACC 126 Intermediate Electronic Spreadsheets

1 Credit

Prerequisite: ACC 125, CIS 150 or equivalent

This course builds on the basic concepts of electronic spreadsheets covered in ACC 125 by providing students with hands-on experience constructing more complex spreadsheets utilizing more advanced features of spreadsheet software.

Decision-making with if-then structures and sorting and combining spreadsheets are covered. In addition, students learn to use some of the special functions such as lookup tables, average, count, minimum, maximum, amortization, present and future value and depreciation. Lastly, students are introduced to the database and the graphics capabilities of the software. Lotus 1-2-3 or other popular versions are used. See the *Course Planning Schedule*.

ACC 127 Advanced Spreadsheets—Macros

1 Credit

Prerequisite: ACC 126, CIS 151 or equivalent

This course introduces macros and the command language. Students write macros that include the features of if-then, looping, accept user input, subroutines, open, read and write files and maintenance-oriented macros. Troubleshooting and debugging are emphasized.

ACC 136 Computerized Accounting

3 Credits

Prerequisite: ACC 101

Corequisite: ACC 136 Lab

This course introduces data entry procedures on the computer in accounting applications. Students study theory and application of general ledger, accounts receivable, accounts payable and payroll functions of accounting as performed on a typical microcomputer system. Additional topics discussed are internal control and selection of a computerized accounting system. This course gives students hands-on experience on the microcomputer culminating with a computerized practice set.

ACC 137 Electronic Spreadsheets

3 Credits

Prerequisite: CIS 118 or equivalent and ACC 101 or 121

Corequisite: Computer Lab

This course introduces students to the concepts and uses of electronic spreadsheets as they apply in accounting. Students construct several spreadsheets and graphs as well as learn to use the database query and statistical features. Use and design of macros are introduced.

ACC 138 Payroll and Sales Tax

3 Credits

Corequisite: ACC 101

This course acquaints students with various payroll systems; recordkeeping rules for both payroll and sales taxes; and the preparation of the required federal, state and local forms for reporting sales taxes and payroll taxes.

ACC 146 Individual Income Tax

5 Credits

Prerequisite: ACC 121 recommended

This course introduces preparation of Federal and Colorado individual income tax returns according to the Internal Revenue Service and Colorado Department of Revenue regulations. It familiarizes students with the most frequently used tax forms, information and procedures. This course also includes the preparation of income tax forms necessary for a sole proprietorship business, gains and losses on sale of assets, alternative methods of computing income tax and methods of researching tax questions.

ACC 151 Operating Your Bookkeeping Business

1 Credit

This course assists students in starting and operating their own bookkeeping business. Topics include working with the firm's accountant, client development, establishing appropriate billing rates and billing procedures for a bookkeeping business and developing checklists to ensure quality in the provision of bookkeeping services. Adherence to proper accounting procedures and compliance with Internal Revenue, Colorado Department of Revenue and other regulatory agency requirements; computerization of services including selection of appropriate accounting software and hardware; resource materials including I.R.S. and Colorado Department of Revenue publications; industry audit guides and other source materials are also covered.

ACC 161 Understanding Financial Statements

3 Credits

This course examines the elements of the primary financial statements including balance sheet, income statement, retained earnings statement and statement of cash flows. Students do vertical and horizontal analysis of statements, as well as learn to calculate key ratios and rates of return.

ACC 190 Financial Investigations

3 Credits

This course introduces the current perspectives dominant in the field of financial investigations. This course also discusses concepts of law and evidence, sources of information including financial institutions, business financial record keeping, and tracing funds, using a variety of methods and interviewing as they apply to detecting and resolving financial crimes. Emphasis is placed on theoretical principles and applications of financial investigative techniques.

ACC 211 Intermediate Accounting I

5 Credits

Prerequisites: ACC 122, MAT 100 or equivalent

This course studies the conceptual framework of financial accounting and advanced theory and practice applicable to including time value of money, current assets, current liabilities and operational assets.

ACC 212 Intermediate Accounting II

5 Credits

Prerequisite: ACC 211

This course is a continuation of ACC 211. It focuses on the theoretical and practical aspects of accounting for long-term liabilities, stockholders' equity, investments, pensions and leases. Income tax allocation, financial statement analysis, cash flow statements and accounting methods changes are also covered.

ACC 216 Governmental Accounting

3 Credits

Prerequisite: ACC 122

This course studies the hands-on approach to accounting for local, state and federal governments as prescribed in the law and in generally accepted governmental accounting practices. It includes the study of fund accounting, budgeting, revenues, appropriations and expenditure controls.

ACC 226 Cost Accounting I

4 Credits

Prerequisite: ACC 122, MAT 100 or equivalent

This course studies cost accumulation methods and reports. The concepts and procedures of job order, process, standard and direct cost systems are covered, and budgeting, planning and control of costs are included.

ACC 227 Cost Accounting II

3 Credits

Prerequisite: ACC 226

This course is a continuation of ACC 226 and focuses on the decision-making aspects of managerial accounting using microcomputer spreadsheet applications for assigned problems. Topics include product pricing strategy, capital budgeting, statement of cash flows and application of linear programming.

ACC 241 Oil and Gas Accounting

3 Credits

Prerequisite: ACC 122

This course focuses on terminology associated with the oil and gas industry, company organization and accounting for expenditures incurred in exploration, leasing and developing activities. Agency reporting requirements for energy extraction companies are covered, along with a comparison of accounting methods used including successful efforts method, full-cost method and revenue recognition.

ACC 246 Business Taxation

3 Credits

Prerequisite: ACC 146

This course introduces the preparation of Federal and Colorado business tax returns and tax reports according to the current Internal Revenue Code and Colorado Department of Revenue regulations. This course familiarizes students with the most frequently used tax forms, information resources and procedures. Practical application is emphasized with actual preparation of income tax forms for C-Corporations, S-Corporations and partnerships. An overview of payroll, sales, excise and property taxes and the proper filing of their related forms is included.

AIR CONDITIONING, HEATING AND REFRIGERATION*(See Construction Technology.)***ANTHROPOLOGY****ANT 101 Cultural Anthropology**

3 Credits

This course studies human cultural patterns and learned behavior. The course includes linguistics, social and political organization, religion, culture and personality, culture change and applied anthropology. Cultural anthropology deals with issues of cultural diversity, pluralism and relativism as a component of multi-cultural studies.

ANT 111 Physical Anthropology

3 Credits

This course studies human biology and its effects on behavior. It includes principles of genetics and evolution, vertebrates and primates, human origins, human variation and ecology.

ANT 209 Culture in the World Today: Latin America

3 Credits

This course presents a view of cultural dynamics.

ANT 271 History of Middle America

3 Credits

This course traces the history of the indigenous people of Mexico from the first inhabitants through the conquest by the Spanish in 1521 A.D. Special emphasis is placed on such cultures as the Olmec, Maya, Toltec, Totonac, Teotihuacan and Aztec. The course presents the daily life, religion, art, social and political organization and other historical characteristics.

ART**ART 110 Art Appreciation**

3 Credits

This course is an introduction to the visual arts including language, concepts, process and history.

ART 111 Art History I

3 Credits

This course provides the knowledge base to understand the visual arts, especially as related to Western culture. It surveys the visual arts from the Ancient through the Medieval periods.

ART 112 Art History II

3 Credits

This course provides the knowledge base to understand the visual arts, especially as related to Western culture. It surveys the visual arts from the Renaissance through the Modern periods.

ART 121 Drawing I

3 Credits

This course is an investigation of various approaches and media designed to develop drawing skills and visual awareness.

ART 122 Drawing II

3 Credits

This course studies expressive drawing techniques and development of individual expressive style.

ART 131 Design I

3 Credits

This course studies basic design elements, visual perception, form and composition.

ART 132 Design II

3 Credits

This course covers the application of design elements and principles to both two and three dimensional problems.

ART 151 Photography I

1-3 Credits

This course is an introduction to black and white photography as a fine art medium and it develops skills necessary for basic camera and lab operations.

ART 152 Photography II

1-3 Credits

This course further explores camera and lab operations with and emphasizes individual creativity. It includes the development of a comprehensive portfolio.

ART 156 Fundamentals of Ceramics

1 Credit

This course is an introduction and comprehensive study of low fire ceramics. It introduces handbuilding techniques such as slab, coil and pinch; and throwing on the wheel. There is discussion of technical and esthetics concerns. *Offered at the Arvada Center for the Arts and Humanities only.*

ART 157 Advanced Wheel Throwing

1 Credit

Prerequisite: Permission of instructor

This course is a comprehensive study of wheel thrown work. Using the wheel as a tool and learning to finish the work, glazing and firing are discussed. There are discussions of technical and esthetics concerns. *Offered at the Arvada Center for the Arts and Humanities only.*

ART 158 Advanced Handbuilding

1 Credit

Prerequisite: Permission of instructor

This course is a comprehensive study of handbuilding. Basic handbuilding techniques such as slab, coil and pinch; learning advanced handbuilding techniques; working on a large scale and combining techniques and including the wheel are covered. There are discussions of technical and esthetics concerns. *Offered at the Arvada Center for the Arts and Humanities only.*

ART 160 Fundamentals of Ceramics I

3 Credits

This is an art methods course concerned with developing the student's ability to produce and appreciate ceramic art objects including utilitarian pottery, decorative vessels and sculpture. The fundamental topics covered are wheel throwing and handbuilding techniques, the physical and chemical properties of clay and glazes, surface decoration techniques and firing techniques.

ART 162 Fundamentals of Ceramics II

3 Credits

Prerequisite: ART 160

This is an art methods course concerned with the continued development of the students ability to produce and appreciate ceramic art objects including utilitarian pottery, decorative vessels, and sculpture. In this course the basic skills of wheel throwing, handbuilding, clay and glaze science, decorative techniques, and firing processes will be further developed.

ART 211 Painting I

3 Credits

This course covers color composition, materials and techniques of studio painting.

ART 212 Painting II

3 Credits

This course emphasizes experimentation with materials, composition and color.

ART 213 Painting III

3 Credits

This course provides continuing investigation of subject, color composition and individual forms of expression.

ART 214 Painting IV

3 Credits

This course provides advanced work with theme development, sophisticated color relationships, experimentation in conceptual forms and consistent progression of subject matter.

ART 221 Drawing III

3 Credits

This course provides further exploration of expressive drawing techniques and style.

ART 222 Drawing IV

3 Credits

This course covers advanced drawing problems with emphasis on individual style, subject and content.

ART 224 Sculpture I

3 Credits

This course introduces the fundamentals of sculpture such as modeling, casting, carving and assemblage processes.

ART 225 Sculpture II

3 Credits

This course provides a development of the understanding and manipulation of three-dimensional form, with greater concentration on individual creativity and style.

ART 228 Printmaking I

3 Credits

This course introduces the basic techniques and skills of printmaking as fine art media. Instruction includes an understanding of the visual concepts as they relate to print.

ART 231 Watercolor I

3 Credits

This course introduces the basic techniques and unique aspects of materials involved with using transparent and/or opaque water media.

ART 232 Watercolor II

3 Credits

This course provides advanced study of subject development, form, color and theme.

ART 233 Watercolor III

3 Credits

This course provides continuing study of watercolor techniques with an emphasis on original compositions and experimentation with materials.

ART 234 Watercolor IV

3 Credits

This course provides advanced study of techniques, individual style or expression and consistency of compositional problem-solving.

ART 255 Color Photography

3 Credits

This course covers the fundamentals of color photography such as color theory and light, production, processing and printing of color negatives.

ART 261 Second Year Pottery I

3 Credits

Prerequisites: ART 162 or permission of instructor
Intermediate wheelwork with advanced throwing problems is covered in this course and there is continuing involvement in glazing and firing techniques.

ART 262 Second Year Pottery II

3 Credits

Prerequisites: ART 261 or permission of instructor
This course is a continuation of ART 261. This course covers more advanced throwing problems in one of three areas: (1) tableware, (2) other functional forms and (3) art forms.

ART 263 Ceramic Design

3 Credits

Prerequisites: One semester of handbuilding and/or throwing

This course covers design and the decoration of pottery forms. Students may work in one or more areas of throwing, extruding, handbuilding, casting or any combination of forming techniques in clay. This course includes various glazing, firing and fabricating processes that aid or result in pottery decoration.

ART 265 Handbuilt Clay III

3 Credits

This course covers advanced problems that are investigated with emphasis placed on large-scale pieces that promote creativity with techniques and combinations of different textures.

ART 266 Intermediate Wheel Throwing

1 Credit

This course is an introduction and comprehensive study of wheel-thrown work and starts with using the wheel as a tool. This course covers finishing the work, glazing and firing. There are discussions of technical and esthetics concerns. These discussions include construction techniques, design problems, glazing, decoration technique and firing. Glazing includes slips, englobe and terra sigillata. Firing techniques concentrate on high fire and salt. Along with direct experience, this course also includes keeping a sketchbook, visiting studios or museums and learning a new clay vocabulary.

ART 270 Figure Drawing I

3 Credits

This course is an introduction to the basic techniques of drawing the human figure.

ART 271 Figure Drawing II

3 Credits

This course provides a continuing study of the various methods of drawing the human figure, with emphasis on the description of form and individual style.

ART 280 Metalsmithing and Jewelry

3 Credits

This course is designed as an introduction to the design and construction of jewelry. Safety and proper shop techniques are also covered.

ART 281 Metalsmithing and Jewelry II

3 Credits

This course uses advance design techniques in jewelry construction. It also introduces students to new tools and studio techniques.

ART 290 Special Topics: Raku

Variable Credits

This course is an introduction and comprehensive study of Raku fired ceramics. Building techniques, including slab, pinch and coil are introduced as well as using the wheel as a tool. Learning to finish the work, glazing and firing are also covered. The technical and aesthetic aspects of ceramics are discussed. Discussions include construction techniques, design problems and decoration techniques. This course also explores slips, englobe and raku glazes. Students are required to keep sketch books, attend studio or museum visits and learn new clay vocabulary.

ASTRONOMY

AST 101 Astronomy I

4 Credits

This course studies the history of astronomy, the tools of the astronomer and the contents of the solar system: planets, moons, asteroids, meteoroids and comets. This course also includes laboratory experience.

AST 102 Astronomy II

4 Credits

This course studies the structure and life cycle of the sun, stars, galaxies and the universe as a whole, including cosmology and relativity. This course also includes laboratory experience.

AUTO COLLISION TECHNOLOGY

ACT 120 GMAW (MIG) Welding

3 Credits

This course develops the skills needed to analyze factors such as welding current, voltage, gun angle, shielding gases, wire speed and their affects on MIG welding. Students produce several Mig welding plates that meet or exceed industry standards.

ACT 140 Non-Structural Parts Repair (Outer Body Panel Replacement/Adjustment Repair)

3 Credits

This course explores how to remove and replace non-structural parts of an automobile.

ACT 160 Structural Analysis

3 Credits

This course develops students skills needed to identify and diagnose various types of body damage, including twist, mash, sag and side sway, and explains how the datum plane and center line concepts relate to body repair.

ACT 164 Unibody Measurement

3 Credits

This course enables students to measure a damaged unibody vehicle using a universal measuring system and interpret body dimension information and key location reference points. The use of a dedicated (fixture) system, tape measure, tram bar and a self-centering gauge are also utilized.

ACT 168 Anchoring, Pulling and Stress Relieving

3 Credits

Prerequisites: ACT 120, 160 and 164

This course enables students to identify and set-up various types of straightening equipment and explains how they are used. This course also plans and executes a pulling sequence using a multiple-pull approach and performs basic stress relieving techniques.

ACT 170 Surface Preparation

5 Credits

This course inspects and identifies types of finishes and surface conditions. This course also covers terminology including: materials, finishes, surfaces preparation, masking and application of under coats. In addition, this course prepares students in the usage of power sanding equipment and existing paint films for refinishing.

ACT 174 Paint Mixing, Matching and Applying

5 Credits

This course covers types/colors of paint on vehicles, correctly mixing materials to manufacturers' recommendations, selecting spray equipment, adjusting air pressure and spraying technique. The instructor assigns either practice panels, shop vehicles or customer vehicles to be refinished with various types of repair systems.

ACT 178 Finish Defects, Causes and Cures

3 Credits

This course enables students to identify finish defects, determine the cause and correct the condition.

ACT 180 Plastics and Fiber Glass Repair/Adhesives

3 Credits

This course studies plastic automobile parts, resin/fiber glass parts and SAC fiber glass parts. Students make resin/fiber glass parts and molds and perform adhesive repairs of all types of plastics.

ACT 184 Plastic Parts Repair/Welding

3 Credits

This course studies thermoplastic automotive parts and appropriate welding techniques. This course also explores plastic parts retexturing and refinishing of repaired parts.

ACT 190 Automotive Damage Estimating

3 Credits

This course explores the purposes of the estimate sheet, the use of professional guides and manuals and the procedures of producing completed estimates of damaged automobiles. This course also utilizes computerized applications to generate professional estimate sheets.

AUTOMATION SYSTEMS AND ROBOTICS

ASR 203 Servos, Amplifiers, Motors, Control and Applications

4 Credits

This course studies motor and motor control circuits used in industry. Topics include common SCR driven voltage and current regulators, servo loop drive systems and amplifier used in feedback, A.C. motor and frequency drives. It also includes control and application studies.

ASR 210 Robotics and Process Control

7 Credits

This course analyzes linear and non-linear control and examines proportional, differential and integral control methods including mechanical modeling and enhancement with computer adaptation. These are then applied to robot actuators.

ASR 220 Robotics and Automation Systems

7 Credits

This course develops a control system for two dissimilar robots (one servo loop and one stepper motor open loop) that includes calibration, angular position, position tracking, angular placement and three dimensional placement from dissimilar references. Tactile control is included with diameter estimation.

ASR 230 Sensors, Vision and Systems Interfacing

7 Credits

This course studies the operation of vision systems and image processing and examines its implementation in a robotics work cell. Interfacing with the above systems and with conventional automation systems; i.e., conveyors, table, controllers, computers is also covered.

ASR 240 Automation Systems Design and Applications

7 Credits

This course explores designing and building an operational system to include both robot types, a vision system, conveyors and index table, etc. The system uses all resources and includes pattern recognition and decisions through stimulus.

AUTOMOTIVE TECHNOLOGY

AUM 100 Principles of Engine Operation, Safety and Electrical Systems

4 Credits

This course introduces shop safety, hand tools, fundamentals of electricity, basic types of engine designs and their principles of operation, schematic diagrams, tests, equipment and probable causes of electrical system problems. Students are taught breaker point and solid state ignition construction and test procedures.

AUM 106 Charging and Starting Systems

4 Credits

This course covers how to diagnose, repair and replace charging system components; and test, remove and repair alternators on domestic automobiles. This knowledge is evidenced through demonstrations and unit tests.

AUM 107 Fuel Systems

4 Credits

This course enables students to apply the theories of operation of automotive fuel systems to determine malfunctions in engine fuel systems; and rebuild and make proper adjustments on one, two and four barrel carburetors. This knowledge is evidenced through unit tests and demonstrations.

AUM 110 Electronic Testing and Emission Controls

4 Credits

This course enables students to operate an electronic engine tester and interpret the test results. Students should also know the function of emission control components, operate and interpret the emission tester results and make the necessary repairs. These abilities are evidenced by written and performance tests.

AUM 115 Drum Brake Systems

4 Credits

This course enables students to apply the theory of hydraulic principles, brake operation and identify brake parts and define terms associated with brake systems. Students should demonstrate the ability to replace shoe and lining assemblies, recondition wheel cylinders and master cylinders and properly bleed a brake system. This knowledge is evidenced by demonstration and a series of unit tests.

AUM 116 Disc Brake Systems

4 Credits

This course enables students to describe the purpose and operation of disc brakes, identify parts and define terms associated with disc brake systems. Students should demonstrate the ability to remove, replace and overhaul a caliper assembly; replace brake pads; and properly bleed a disc brake system. Knowledge is evaluated by demonstration and a series of unit tests.

AUM 117 Wheel Alignment

4 Credits

This course explores the principles and purpose of wheel alignment and the various methods of adjustments. Students should demonstrate the ability to align an automotive front end and define terms associated with wheel alignment. Knowledge is evidenced by demonstration and unit tests.

AUM 120 Auto Mechanics for Mechanical Trades

4 Credits

This course is an orientation to the field of auto mechanics. General principles, initial techniques and skill development and how auto mechanics relates to the various trades are covered.

AUM 201 Automotive Electronic Engine Systems Operations

8 Credits

This course teaches the electronic components associated with late model computerized vehicles. This includes the study of the ECM, ECM input devices, ECM output actuators and their fundamental operation. This knowledge is evidenced by unit and performance testing.

AUM 202 Automotive Electronics Engine Systems, Service and Repair

8 Credits

This course covers the procedures to accurately diagnose, service and repair late model computerized engine control systems. Given the appropriate tools, equipment and reference materials students should be able to diagnose system defects and make corrective repair. This knowledge is evidenced by unit and performance testing.

AUM 205 Clutches and Manual Transmission

4 Credits

This course studies the construction and operation of the clutch assembly. Students should demonstrate the ability to remove, inspect and correctly replace a clutch assembly. Knowledge is evidenced through demonstration and unit tests.

AUM 206 Drive Lines and Differentials

4 Credits

This course identifies the components and explains the purpose of the drive line and universal joints correctly. Students should be able to repair or replace drive line components as necessary. Also, students should be able to explain the purpose of the differential; identify the different types; and remove, check, disassemble, reassemble, adjust and replace a standard differential assembly. Knowledge is evidenced through demonstration and unit tests.

AUM 207 Automatic Transmission, Theory and Maintenance

4 Credits

This course explores the purpose and identifies the component parts of an automatic transmission. Given a hydraulic circuit, test pressures and transmission symptoms, students should be able to predict the probable cause or causes of automatic transmission failures three out of five times.

AUM 208 Automatic Transmission Rebuild

4 Credits

This course enables students to perform the checks, tests and adjustments associated with transmission service. Given an automatic transmission in need of an overhaul, replacement parts and specifications, students should be able to return the transmission to manufacturer's specifications within twice the flat rate time.

AUM 210 Automotive Diesel Service

4 Credits

This course introduces four-cycle diesel engines currently used in some automobiles. It includes fuel, coolant and lubricating systems, basic servicing and maintenance. Knowledge is evidenced by unit testing.

AUM 215 Engine Operation, Diagnosis, Disassembly and Measurement

6 Credits

This course enables students to describe and explain the operation of an automobile engine and the function of components. Students should also be able to explain overhaul procedures, disassembly and measurement of engine parts with precision tools and to define terms and procedures associated with overhaul of cylinder heads and block assemblies. Knowledge is evidenced through demonstration and unit tests.

AUM 216 Engine Recondition and Assembly

6 Credits

This course enables students to explain overhaul and assembly procedures and identify the components and correct usage of assembly procedures. Students should also be able to time and make final adjustments to the engine. Knowledge is evidenced by shop performance and unit tests.

AUM 217 Air Conditioning, Theory, Service and Safety

4 Credits

This course studies the principles of air conditioning and defines related terms. It also identifies the components of a basic air conditioning unit and matches the function to the component and identifies tools and special equipment used for air conditioning service. Students should also be able to perform minor repairs, to discharge, evacuate, leak test and charge a basic unit. Knowledge is evidenced through performance and unit tests.

AUM 219 Customer Service

4 Credits

This course is designed for students desiring additional work experience in areas in which they feel deficient or in which they may want to specialize. This may be arranged on an hourly basis with permission of the instructor(s) involved.

AUM 225 Advanced Automatic Transmission

8 Credits

In this course students have advanced study diagnosing, removing, reconditioning and replacing automatic transmissions. Knowledge is evidenced by performance and unit tests.

AUM 226 Advanced Emission Control Service

8 Credits

This course enables students to obtain advanced study diagnosing emission control problems. This course is recommended for continuing students and individuals preparing for N.I.A.S.E. Testing and State Emission's Inspection Certification. Knowledge is demonstrated by performance and unit testing.

AVIATION TECHNOLOGY

AVI 101 Introduction to Aviation

3 Credits

This course presents a general study of the aviation field which includes theory of flight, growth and development of aviation through gliders and balloon flights to the modern jets and space age, aviation in today's economy and aviation careers.

AVI 102 Private Pilot Ground School

3 Credits

This course provides the necessary aeronautical knowledge to meet the prerequisites specified for the FAA Private Pilot Written Examination. This course includes basic aerodynamics, airplane systems, air traffic control and communications, weights and balance, meteorology, flight computer and plotter, charts, FAA regulations, basic navigation, radio navigation and physiology of flight.

AVI 103 Instrument Ground School

3 Credits

Prerequisites: AVI 102 or permission of instructor
This course provides students with the necessary aeronautical knowledge to meet the prerequisites specified for the FAA Instrument Pilot Written Examination. This course includes instruments and systems, ILS and Radar Services, IFR pilot's privileges and limitations, weather hazards, weather services, general operating rules and procedures, National Airspace Systems, emergency IFR operations and IFR clearances.

AVI 104 Commercial Ground School

3 Credits

Prerequisites: AVI 102 or permission of instructor
This course provides students with the necessary aeronautical knowledge to meet the prerequisites specified for the FAA Commercial Pilot Written Examination. This course includes commercial applications of weight and balance loading, use of performance charts, complex airplane systems, general operating rules and procedures for operation in national airspace and provisions of FBAR part 135 governing air taxi operations and general considerations for pilot professionalism.

AVI 106 Meteorology

3 Credits

This course is an in depth study of basic weather phenomenon. This course includes interpretation and recognition of weather systems, their causes and effects, use of weather charts and forecasts and weather services which support aviation.

AVI 111 Private Flight

3 Credits

This course requires students to obtain flight instruction from an approved 141 flight school. An FAA Private Pilot Certificate must be obtained to receive credit for this course. The student is responsible for presenting evidence of certification. *Red Rocks Community College does not provide flight training but provides a list of approved 141 flight schools.*

AVI 112 Instrument Flight

3 Credits

Prerequisite: AVI 102, 111 or permission of instructor
This course requires students to obtain flight instruction from an approved 141 flight school. An FAA Instrument rating must be obtained to receive credit for this course. Students are responsible for presenting evidence of certification. *Red Rocks Community College does not provide flight training but provides a list of approved 141 flight schools.*

AVI 113 Commercial Flight

3 Credits

Prerequisite: AVI 104 or permission of instructor
This course requires students to obtain flight instruction from an approved 141 flight school. An FAA Commercial certificate must be obtained to receive credit for this course. Students are responsible for presenting evidence of certification. *Red Rocks Community College does not provide flight training but provides a list of approved 141 flight schools.*

BIOLOGY

BIO 105 Science of Biology

4 Credits

This course is designed for non-science students. Students examine the basis of biology in the modern world and survey the current knowledge and conceptual framework of the discipline. Biology as a science is explored as is the impact of biological science on society. This course includes laboratory experience.

BIO 111 General College Biology I

5 Credits

This course examines the fundamental molecular, cellular and genetic principles characterizing plants and animals. Cell structure, function and the metabolic processes of respiration and photosynthesis are included as well as cell reproduction and basic concepts of heredity. This course includes laboratory experience.

BIO 112 General College Biology II

5 Credits

Prerequisite: BIO 111

This course is a continuation of BIO 111 and topics include evolution, classification, structure and function in plants and animals and ecology. This course includes laboratory experience.

BIO 201 Human Anatomy and Physiology I

4 Credits

Prerequisite: Recent experience in Biology or Chemistry recommended

This course is an integrated study of the human body in which the histology, anatomy and physiology of each system is covered. The first part of this two semester course includes molecular, cellular and tissue levels of organization; integuments, skeletal, articulations, muscular, nervous, senses (or endocrine, digestive and respiratory) systems. This course has a laboratory experience that includes experimentation, microscope work, observations and dissection.

BIO 203 Human Anatomy and Physiology II

4 Credits

Prerequisite: BIO 201

This course is an integrated study of the human body in which the histology, anatomy and physiology of each system is covered. The second part of this two semester course includes study of the following systems: cardiovascular with hematology, lymphatic, immunological, urinary with fluid and electrolyte control, digestive with nutrition, respiratory (or endocrine, nervous and senses) and the reproductive system with genetics and development. This course has a laboratory experience that includes experimentation, microscope observation and dissection.

BIO 205 Microbiology

4 Credits

Prerequisite: BIO 111, 201 or permission of the instructor

Corequisite: Laboratory

This course is a survey of the biology of microorganisms. Major topics include microbial diversity, functional anatomy, biochemistry, genetics, ecology and disease. The laboratory experience offers students the opportunity to examine, culture, and identify microbes and to conduct experiments on microorganisms.

BIO 211 Cellular Biology

4 Credits

Prerequisite: BIO 111 or permission of instructor

This course introduces the major topics and techniques of modern cell biology. Topics include chemistry of carbohydrates, lipids, proteins and nucleic acids; structure and function of prokaryotic and eukaryotic cells; biochemistry of cellular respiration; cell cycle; enzymes; plasma membranes, cell motility. Laboratory emphasizes reagent preparation, centrifugation, microscopy, bacteriology, cytochemistry, immunochemistry, cell fractionation, gel electrophoreses. The scientific method is emphasized as the approach to problem solving, data collection and analysis.

BIO 212 Molecular Biology

4 Credits

Prerequisites: BIO 205, BIO 211 or permission of instructor

This course introduces the theory and techniques of modern molecular biology. Lecture topics include DNA/RNA structure and function, DNA replication, gene expression and regulation and recombinant DNA technology. Both eukaryotic and prokaryotic models are used. Laboratory emphasizes bacteriology, isolation and purification of DNA, cloning with phage and plasmid vectors, restriction enzyme digests and agarose gel electrophoresis. The scientific method is emphasized as the approach to problem solving, data collection and analysis.

BIO 225 General Zoology

5 Credits

Prerequisite: BIO 105, 111 or permission of instructor

Corequisite: Laboratory

This course introduces a variety of zoological topics using a comparative approach to investigate animal structure, physiology, reproduction, development, ecology, evolution, and zoogeography. A survey of zoological diversity emphasizes the characteristics, zoological contributions and classification of animal phyla and major classes.

BIO 226 Botany

5 Credits

Prerequisite: BIO 111, 112 or permission of instructor

This course studies both vascular and nonvascular plants. It will emphasize photosynthetic pathways, form and function, reproduction, physiology, genetics, diversity, evolution and ecology. This course also involves laboratory and field experiences. *This course may require some hiking*

BIO 227 Ecology

4 Credits

Prerequisite: BIO 111, 112 or permission of instructor

This course is a study of the interdependence between organisms and their environments. Topics covered are composition and function of terrestrial and aquatic ecosystems, population biology, pollution and the effects of man on ecosystems. This course includes laboratory and field experiences.

BIO 228 Field Biology

2-3 Credits

Prerequisite: BIO 111, 112 or permission of instructor

Corequisite: GEY 208

This course involves in-depth field studies of natural environments within and outside of Colorado. The course varies from 7-10 days in length. It involves identification of plant and animal organisms as well as an examination of ecological concepts and principles. *This course involves extensive hiking*

BRICKLAYING*(See Construction Technology.)*

BUSINESS

BUS 110 Mathematics of Business/Personal Finance

3 Credits

Prerequisite: Minimum of high school algebra or equivalent
This course emphasizes the development and understanding of concepts regarding various business applications. Students learn mathematical problem solving in the areas of merchandising, financial accounting, general business and personal finance.

BUS 115 Introduction to Business

3 Credits

This course is a survey of the operation of the American business system including the fundamentals of the economy, careers and opportunities, marketing, management, production, governmental regulations, tools of business and social responsibilities.

BUS 120 Business Mathematics by Machine

4 Credits

This course is designed to provide a basic understanding of business mathematics using calculating machines. Students develop calculating machine skills and learn mathematical problem solving in the areas of merchandising, financial accounting and general business.

BUS 216 Legal Environment of Business

4 Credits

This course explores the government regulation of business. The course discusses the origins, development and sources of law. The legal system (legislature, courts, administrative agencies, etc.) is described, emphasizing the areas relating to the regulation of business. This course corresponds to public law affecting business, not traditional private law. This law concerns matters with which a business manager must deal including government, stockholders, competitors, employees and the public. This course also discusses contract law.

BUS 217 Business Communications and Report Writing

3 Credits

Prerequisite: A minimum of 3 credit hours of a 100 level English course or equivalent.
This course emphasizes effective business writing including letters, memoranda, reports, application letters and resumes. The fundamentals of business communication and international communication is introduced.

BUS 218 Commercial Law

4 Credits

This course explores the legal system and how it applies to business and the consumer. It includes an in-depth study of the UCC (Uniform Commercial Code) as it applies to the sale of goods, secured transactions and commercial paper. The fundamental concepts of real property and the law of bankruptcy are also covered.

BUS 221 Business Law I

3 Credits

This course introduces business law including, but not restricted to, such topics as foundations of the legal system, contracts, sales (UCC), agency and property (real and personal).

BUS 226 Business Statistics

3 Credits

Prerequisite: MAT 105 or permission of instructor
This course is intended for business majors and covers statistical study, descriptive statistics, probability and the binomial distribution, index numbers, time series, decision theory, confidence intervals, hypothesis testing, testing of two-sample means, chi-square and ANOVA, linear regression and correlation.

BUSINESS TECHNOLOGY

BTE 100 Touch Keyboarding

2 Credits

Corequisite: Computer Lab

This course is an introduction to touch keyboarding as well as basic operations and functions of equipment. This course emphasizes learning the alphanumeric keyboard, proper technique, and speed and control. This course is designed for students who have minimal or no keyboarding skills.

BTE 102 Keyboarding Applications

3 Credits

Prerequisite: Minimum typing speed of 25 wpm

Corequisite: Computer Lab

This course is designed for students with keyboarding skills. Letters, tables, memos and reports are introduced. Production and formatting of documents using PCs are stressed. Speed and accuracy is also emphasized.

BTE 103 Keyboarding Skillbuilding I

3 Credits

Prerequisite: Minimum typing speed of 20 wpm

Corequisite: Computer Lab

This course is designed to increase speed and improve accuracy in keyboarding on the PC through the use of correct techniques and concentrated effort.

BTE 104 Keyboarding Skillbuilding II

3 Credits

Prerequisite: BTE 103

Corequisite: Computer Lab

This is a skill-building course designed to increase speed and improve accuracy in keyboarding on the PC through the use of correct techniques and concentrated effort.

BTE 106 Ten-Key Keyboarding

1 Credit

This course provides speed and accuracy drills by touch using proper techniques on the ten-key calculator and includes the four functions of addition, subtraction, multiplication and division.

BTE 108 Ten-Key by Touch (PC 10-Key Pad)

1 Credit

Corequisite: Computer Lab

This course introduces to touch control of a ten-key pad. This course emphasizes the development of speed and accuracy using proper techniques.

BTE 115 Data Entry I

3 Credits

Prerequisites: Keyboarding skills; CIS 118

Corequisite: Computer Lab

This course is designed to develop data-entry skills on the PC using dBase, Lotus and related applications. This course also reviews DOS commands.

BTE 121 Alpha Shorthand

4 Credits

Prerequisite: Keyboarding Skill of 30 wpm

This course that covers the theory of an alphabetic system of shorthand. Brief forms and theory are introduced. Dictation speed and transcription skills are developed.

BTE 125 Procedures for Workplace 2000

3 Credits

Pre-corequisite: BTE 100

This course focuses on the knowledge and skills necessary for successful employment in the business field. Topics include communication skills, human relations, business ethics and professional growth.

BTE 131 Gregg Shorthand

4 Credits

Prerequisite: Keyboarding Skill of 30 wpm

This course covers the theory of Gregg Shorthand. Brief forms and theory are introduced. Dictation speed and transcription skills are developed.

BTE 135 Office Correspondence

3 Credits

Prerequisite: BTE 100 or equivalent

This course teaches language arts through the use of written communications. Emphasis is on grammar, spelling, formatting, proofreading and editing of business documents. Work in verbal communications for the office are included such as listening and self-expression.

BTE 140 Medical Office I

4 Credits

This course is designed specifically for the medical office. It introduces students to career opportunities and professional growth in the medical office. This course includes reception and telephone management, appointment coordination, medical law and ethics, patient record management and patient communication.

BTE 141 Medical Office II

4 Credits

Prerequisite: BTE 140 or equivalent

Pre-corequisite: BTE 102 or equivalent

This course is designed specifically for the medical office and includes pegboard accounting, payroll and banking procedures as well as credit and collections. A review of basic mathematics accompanies the accounting unit. It also includes a review of office correspondence as it pertains to the medical office.

BTE 142 Medical Transcription

2 Credits

Prerequisite: HEO 100 and BTE 151 or equivalent

Corequisite: Computer Lab

This course provides instruction in the use of transcribing equipment and in the transcribing of medical reports, operative reports, discharge summaries, x-ray reports, etc. that are used in a hospital or clinic setting.

BTE 145 Beginning WordPerfect

1 Credit

Corequisite: Computer Lab

This course introduces basic WordPerfect commands and functions such as basic text entering and editing, formatting, spell check, thesaurus, hyphenation, block operations, file management, search and replace and printing. Students experience working with multiple documents. *This course is not applicable for certificate or degree programs.*

BTE 146 Intermediate WordPerfect

1 Credit

Prerequisite: BTE 145 or equivalent

Corequisite: Computer Lab

This course is a continuation of BTE 145. Students are introduced to additional formatting commands including fonts, headers and footers, page numbering, paragraph numbering, tables and footnotes. *This course is not applicable for certificate or degree programs.*

BTE 147 Advanced WordPerfect

1 Credit

Prerequisite: BTE 146 or equivalent

Corequisite: Computer Lab

This course is the third in the series of WordPerfect one-credit courses. It introduces students to macros, merge, sort, table of contents and master documents. *This course is not applicable for certificate or degree programs.*

BTE 148 Desktop Publishing

1 Credit

Prerequisite: BTE 147 or equivalent

Corequisite: Computer Lab

This course provides instruction in applying WordPerfect functions and commands to the field of desktop publishing. New topics covered are page layout, printing, fonts, graphics, styles, special characters, and combining text and graphics. *This course is not applicable for certificate or degree programs.*

BTE 151 Word Processing I/WordPerfect

3 Credits

Prerequisites: BTE 102 and CIS 118 or equivalent

Corequisite: Computer Lab

This course provides instruction in the preparation of business documents for the modern office using basic software commands and functions. This includes originating, formatting, processing and editing documents using WordPerfect. Specific functions include basic text editing, spell check, thesaurus, hyphenation, file management, search and replace, block operations, printing, tables, sorting, merging, macros, and headers and footers.

BTE 161 Filing and Records Management

2 Credits

This course provides instruction in alphabetic, numeric, subject, chronologic and geographic systems of filing. This course also covers principles, organization and procedures for records management.

BTE 162 Electronic Filing I

3 Credits

Prerequisites: CIS 118 and BTE 100 or equivalent

Corequisite: Computer Lab

This course provides exercises and application problems that review and enhance the fundamental concepts of dBase IV. Instruction includes the use of the Control Center and its panels to accomplish a variety of database management tasks. Students design and create a database, edit data, organize data in various ways, search for particular data, and design custom data-entry reports and labels.

BTE 206 Coding/Health Insurance Methods and Claims

4 Credits

Prerequisite: HEO 100 or HEO 104

This course is designed to instruct students in understanding general types of health insurance plans on the market, methods of payment, common insurance terms, benefits and limitations of government sponsored and mandated insurance plans. ICD-9, CPT-4 and HCPC coding is discussed as well as filing claims with carriers for reimbursement.

BTE 208 Legal Terminology

3 Credits

Corequisite: BTE 209

This course studies characteristic terms used in the legal profession, including spelling, pronouncing and interpreting how legal terms relate to the various fundamentals of the legal system. It introduces the structure of the court system, judicial documentation, legal ethics and standard procedures followed in legal offices.

BTE 209 Legal Research

3 Credits

Corequisite: BTE 208

This course is designed to provide the knowledge necessary to locate and interpret information including statutes and ordinances within federal, state and local legal publications, through the use of law libraries and other sources of legal material. Emphasis is placed on disseminating legal research through oral and written communication, incorporating legal terminology and style, grammar, proofreading and editing.

BTE 215 Advanced WordPerfect/Desktop Publishing

3 Credits

Prerequisites: BTE 151 or equivalent; typing speed of 50 wpm

Corequisite: Computer Lab

This course covers advanced page and document formatting functions. The course also explores various ways to create documents using desktop publishing techniques as well as sophisticated features of WordPerfect.

BTE 220 Machine Transcription

3 Credits

Prerequisites: BTE 102 and 135 or equivalent

Corequisite: Computer Lab

This course provides instruction in the use of transcribing equipment and established formatting procedures in the production of mailable business documents. A review of English grammar, punctuation, capitalization, abbreviation, numbers and spelling is provided.

BTE 230 Advanced Shorthand

3 Credits

Prerequisite: BTE 121, 131 or equivalent

This course reinforces basic shorthand theories and emphasizes dictation speed and accuracy in producing mailable transcripts from dictation.

BTE 297 Cooperative Education/Internship

3 Credits

Prerequisite: Permission of instructor

This course allows students to gain work experience from on-the-job training.

CARPENTRY *(See Construction Technology.)*

CHEMISTRY

CHE 101 Introduction to Chemistry I

5 Credits

Prerequisite: Algebra or permission of instructor

This course is for non-science majors, students in occupational and health programs or students with no chemistry background. It includes measurements, atomic theory, chemical bondings, nomenclature, stoichiometry, solutions, acid and base, gas laws and condensed states. Laboratory experiments demonstrate the above concepts qualitatively and quantitatively.

CHE 102 Introduction to Chemistry II

5 Credits

Prerequisite: CHE 101 or permission of instructor

This course includes hybridization of atomic orbitals for carbon; nomenclature of organic compounds; properties of different functional groups; nomenclature of various biologically important compounds, their properties and their biological pathways. Laboratory experiments demonstrate the above concepts qualitatively and quantitatively.

CHE 111 General College Chemistry I

5 Credits

Prerequisite: One year of high school chemistry or equivalent

Corequisite: MAT 121 or permission of instructor

This course is for science and engineering majors. It includes the study of measurements, atomic theory, chemical bonding, stoichiometry, gases, condensed states, solutions and thermochemistry. It also includes the problem solving skills and descriptive contents for these topics. Laboratory techniques used in the experiments demonstrate the above concepts as well as the qualitative and quantitative analytical techniques involved in chemistry.

CHE 112 General College Chemistry II

5 Credits

Prerequisite: CHE 111

This course studies of thermodynamics, chemical kinetics, chemical equilibrium, acid-base equilibrium, ionic equilibrium, electrochemistry, nuclear chemistry and organic chemistry. It also includes the problem solving skills and descriptive contents for these topics. Organic chemistry may be included if time permits. The laboratory experiments demonstrate both the qualitative and quantitative analytical techniques.

CHE 211 Organic Chemistry I

5 Credits

Prerequisite: CHE 112

This course covers structure and reactions of aliphatic hydrocarbons and selected functional group families. Nomenclature of organic compounds, stereochemistry, reaction mechanisms are also covered. Laboratory demonstrates the above concepts and techniques.

CHE 212 Organic Chemistry II

5 Credits

Prerequisite: CHE 211

This course covers structure, reactions and reaction mechanisms of aromatic compounds and continuation of functional group families from CHE 211. The chemistry of heterocycles and biologically related compounds is introduced if time permits. Laboratory demonstrates the above concepts and laboratory techniques.

COMMERCIAL FOOD SERVICE MANAGEMENT

RTA 101 Restaurant Arts I

12 Credits

This is a first semester course which must be completed at the Warren Occupational Technical Center. This course covers basic cooking skills which students then apply to the operation of the Warren Center Coffee Shop and Gourmet Dining Room. Students also gain experience in serving the dining public.

RTA 102 Restaurant Arts II

12 Credits

This is a second semester course which must be completed at the Warren Occupational Technical Center. This course consists of three credits in quality food production, which include food preparation and the principles of food handling and storage and three credits in line cooking and table service, which provides training in coffee house and dining room table service as well as customer service. Both courses provide students with practical experience.

COMMUNICATIONS

COM 115 The Job Search Process

1 Credit

This course provides students with the practical skills necessary for success in pursuing and securing employment. Students practice resume and cover letter preparation, telephone techniques and job interviewing skills. Students receive guidance in assessing their strengths and researching employment opportunities.

COM 125 Communication in the Workplace

3 Credits

This course focuses on professional relationships and communication in the workplace by examining topics like self-expression, assertiveness, active listening, negotiation and ethics. Through written and oral expression, students demonstrate understanding of critical thinking, the uses of language and relevant communication theory.

COM 181 Sign Language I

3 Credits

This course gives students basic conversational sign language skills and a knowledge of deaf culture.

COM 182 Sign Language II

3 Credits

Prerequisite: COM 181 or permission of instructor

This course gives students advanced conversational sign language skills and a knowledge of deaf culture.

COMPUTER INFORMATION SYSTEMS

Many of these courses will require concurrent enrollment in computer lab sections.

CIS Computer Lab

½-1 Credit per course

Many computer courses have a lab accompanying them. Students must register for the accompanying lab section to their computer course(s). Computer courses having an accompanying lab are designated with a corequisite of lab. Grading is on a credit/no-credit basis.

CIS 095 Computers and You

3 Credits

Corequisite: Computer lab

This course familiarizes students with the computer and its application in today's home. Each student works with the computer using prewritten programs and learn the basics of the logic used in programming a computer. Applications covered include money and resource management, consumer affairs and the use of computers for entertainment.

CIS 110 Introduction to Microcomputer Operating Systems (DOS)

1 Credit

Corequisite: Computer Lab

This course studies concepts, terminology and skills in the use of an operating system. It emphasizes understanding and using an operating system in a practical way in order to complement the student's use of application software on the microcomputer.

CIS 111 Advanced Microcomputer Operating Systems (DOS)

1 Credit

Prerequisite: CIS 110 is suggested

Corequisite: Computer Lab

This course expands the student's knowledge from CIS 110. Advanced features of the microcomputer operating system commands and application of these features to create an efficient environment for microcomputer operations are covered.

CIS 113 Introduction to the Macintosh Computer

2 Credits

Corequisite: Computer Lab

This course introduces the use and operation of the Macintosh computer. Students are introduced to various Macintosh configurations as well as hands on usage of the system and applications.

CIS 115 Introduction to Computers

4 Credits

Corequisites: Computer Lab; CIS 116 is recommended

This course is an overview of the needs for and roles of computer information systems. It emphasizes computer requirements in organizations, history, hardware functions, programming, systems development and computer operations. Computer applications and programming are introduced.

CIS 116 Logic and Program Design

3 Credits

Corequisite: CIS 115 is recommended

This course introduces the development of computer program design using the concepts of structured programming and logic. Pseudo-code, IPO charts, flowcharts, decision tables, Warnier and HIPO are some of the vehicles used in developing logic designs.

CIS 118 Microcomputer Applications

4 Credits

Corequisite: Computer Lab

This course reviews standard software packages available to support a microcomputer-based work station. Included are descriptions of and hands-on work with word processors, spreadsheets, file and database management systems and other common application packages. *This course is equivalent to taking CIS 120, CIS 138, CIS 140 and CIS 150.*

CIS 119 Intermediate and Advanced Microcomputer Applications

4 Credits

Prerequisite: CIS 118 or 120, 138,140 and 150

Corequisite: Computer Lab

This course addresses intermediate and advanced topics in microcomputer applications. This course provides hands-on work with word processing, spreadsheet and database software. Word processing topics include hyphenation, columns, formats, document design, specialty layouts, macros and graphics. Spreadsheet topics include graphics, database features, macros and "what-if" analysis. Database topics include creating custom screen forms, reports and database programming. *This course is equivalent to taking CIS 121, CIS 122, CIS 141, CIS 142, CIS 151 and CIS 152 separately.*

CIS 120 Introduction To Word Processing

1 Credit

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course uses state-of-the-art software to study the features of word processors including types, strengths and weaknesses, keyboard skills, creating, editing, formatting and printing documents. *Students who have taken CIS 118 should not take this course.*

CIS 121 Intermediate Word Processing

1 Credit

Prerequisite: CIS 120

Corequisite: Computer Lab

This course continues to build on word processing skills learned in the introductory course. Students practice hands-on exercise skills such as hyphenation and columns, format layout, document design and graphics.

CIS 122 Advanced Word Processing

1 Credit

Prerequisite: CIS 121

Corequisite: Computer Lab

This course builds on word processing skills learned in the intermediate course. Students practice hands-on exercise skills such as mail merge, columns, tables and graphics.

CIS 125 Word Processing

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course uses state-of-the-art software to study the features of word processors including types, strengths and weaknesses, keyboard skills, creating, editing, formatting and printing documents. Students practice hands-on exercise skills such as hyphenation, columns, format layout, document design and graphics. *This course is the equivalent of CIS 120, CIS 121 and CIS 122 taken separately.*

CIS 135 Graphics Technology

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course is a lecture/hands-on course that introduces the concepts and techniques of computer graphics technology. Students use paint programs, computer art, scanners and desktop publishing software.

CIS 136 Presentation Graphics

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course focuses on the development of presentation graphics materials including graphs, charts, illustrations and diagrams. Emphasis is on effective communication.

CIS 137 Desktop Publishing

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course is a hands-on course that introduces the concepts and techniques of desktop publishing. Students learn how to merge text and graphics files to create flyers, brochures and newsletters.

CIS 138 Introduction to MS Windows

1 Credit

Corequisite: Computer Lab

This course introduces students to the basics of Microsoft Windows. This course covers installing, configuring and modifying the Windows operating system in a DOS environment. Topics covered include hardware and software considerations and compatibility issues.

CIS 139 Adobe Photoshop

4 Credits

Corequisite: Computer Lab

This course provides an introduction to digital graphics press. The course emphasizes image processing and special effects. Chemical free darkroom and illustration techniques are studied along with graphics/text integration.

CIS 140 Introduction to Microcomputer Database

1 Credit

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course introduces the functions of a database. It includes skills such as file creation, searches, sorts, simple editing and indexing. *Students who have taken CIS 118, should not take this course.*

CIS 141 Intermediate Microcomputer Database

1 Credit

Prerequisite: CIS 140

Corequisite: Computer Lab

This course builds on skills learned in CIS 140. Students practice through hands-on exercise skills such as report writing and command languages.

CIS 142 Advanced Microcomputer Database

1 Credit

Prerequisite: CIS 141

Corequisite: Computer Lab

This course introduces database programming, problem solving and interfacing with other packages.

CIS 143 Microcomputer Database (Paradox: Object PAL)

3 Credits

Prerequisite: CIS 142 or 145

Corequisite: Computer Lab

This course covers the skills, terms and concepts of using the Object PAL programming language to customize and enhance applications that were created using the interactive level of Paradox for Windows.

CIS 145 Microcomputer Database

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course introduces the functions of a database. It includes skills such as file creation, searches, sorts, simple editing and indexing, report writing, command languages, programming, problem solving and interfacing with other packages. *This course is the equivalent of CIS 140, CIS 141 and CIS 142 taken separately.*

CIS 150 Introduction To Electronic Spreadsheets

2 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course gives students a working knowledge of an electronic spreadsheet. It covers fundamental spreadsheet concepts and design, formatting and calculations. *Students who have taken CIS 118 should not take this course.*

CIS 151 Intermediate Electronic Spreadsheets

1 Credit

Prerequisite: CIS 150

Corequisite: Computer Lab

This course continues to build on spreadsheet skills learned in CIS 150. Students practice through hands-on exercises such as design and report writing.

CIS 152 Advanced Electronic Spreadsheets

1 Credit

Prerequisite: CIS 151

Corequisite: Computer Lab

This course presents the development and execution of macros to automate the spreadsheet, menu driven macros, "what if" tables, advanced functions/commands for using a statistical database and formatting output are covered.

CIS 155 Electronic Spreadsheets

3 Credits

Prerequisite: CIS 138 or a working knowledge of Windows

Corequisite: Computer Lab

This course gives students a working knowledge of an electronic spreadsheet. It covers spreadsheet concepts, design, formatting, calculations, report writing, the development and execution of macros to automate the spreadsheet, menu driven macros, "what if" tables, advanced functions and commands for using a statistical database and formatting output are covered. *This course is the equivalent of CIS 150, CIS 151 and CIS 152 taken separately.*

CIS 160 BASIC Language Programming

3 Credits

Prerequisite: CIS 116

Corequisite: Computer Lab

This is an introductory course using the BASIC programming language. Topics include program design, input/output, loop control, string manipulation and array and matrix processing.

CIS 161 Advanced BASIC Language Programming

3 Credits

Prerequisite: CIS 160

Corequisite: Computer Lab

This course studies advanced programming concepts and techniques using the BASIC programming language. Topics include user defined functions, subroutines, data editing and error handling, sequential and random access files and batch and interactive processing. Some sound and graphic functions may be covered.

CIS 165 RPG Programming

3 Credits

Prerequisite: CIS 116

Corequisite: Computer Lab

This course enables students to become proficient in programming with the Report Program Generator language. Topics such as form specifications, arithmetic calculations, comparisons, single and multiple control breaks, headings, fetch overflow, arrays and tables, matching records and file updating are covered.

CIS 175 UNIX

3 Credits

Prerequisites: CIS 115 and one programming language

Corequisite: Computer lab

This course covers the structure and fundamentals of the UNIX operating system. Topics include the files system and file processing, various utility programs and shell, multi-user operation, memory management, text processing and communications.

CIS 176 Advanced UNIX

3 Credits

Prerequisite: CIS 175

Corequisite: Computer Lab

This course continues building upon the skills and commands covered in CIS 175. This course emphasizes advanced shell scripting topics including utilizing pipelines, filters, grep, awk and file processing.

CIS 177 UNIX Systems Administration

3 Credits

Prerequisites: CIS 175

Corequisite: Computer Lab

This course covers the fundamental and essential tasks of administering and managing a UNIX system. Topics include startup/shutdown procedures, managing devices, managing users, checking and managing the file system and managing local and remote terminals.

CIS 180 Introduction to Multimedia

3 Credits

This course introduces students to the concepts and design in multimedia and computer-based training.

CIS 181 Multimedia Software Modeling Development

3 Credits

Prerequisite: CIS 180

Corequisites: Computer lab, CIS 182 and CIS 183 suggested
This course introduces the basic tools and techniques of multimedia modeling and animation. The course contains topics on using tool palettes, interacting with a model, views/perspectives, text objects and freeform/surface editing.

CIS 182 Multimedia Software Authorship

3 Credits

Prerequisite: CIS 180

Corequisites: Computer lab, CIS 181 and CIS 183 suggested
This course introduces the basic tools and techniques of multimedia authorship. The course includes such topics as using functions with movable objects, paging with interactive decision and data collection

CIS 183 Multimedia Software Design/Development

3 Credits

Prerequisite: CIS 180

Corequisites: Computer lab, CIS 181 and CIS 182 suggested
This course introduces the development of a project through the use of a lingo language. Topics include parent scripts and child objects; development of a production; special effects; color cycling and color theory; interactive objects; and perpetual interactions and movable objects.

CIS 187 Introduction to the Internet

1 Credit

Corequisite: Computer Lab

This course introduces the Internet, the global network of computer networks. The Internet's resources and tools are explored. Topics include history, topology, e-mail, LISTSERV, TELNET, FTP, GOPHERS and WWW.

CIS 188 HTML Scripting

1-4 Credits

Corequisite: CIS 187 is recommended

This course is an introduction to HTML, URLs, CGI interface, to the design and preparation of resources for delivery via the World Wide Web (WWW). Students write simple HTML documents and view them with a WWW browser such as Mosaic, Netscape, or lynx.

CIS 205 Information Systems Security Management

3 Credits

This course introduces the world of information systems security. Topics include the laws and history of computer security, overview of systems and communications, how to value information the cost/benefit of security design, loss prevention and how to develop a Disaster Recovery Plan.

CIS 206 Communicating Technical Concepts

3 Credits

This course introduces a variety of concepts and techniques that are useful in communicating technical concepts to both technical and non-technical personnel in an organization. Organizational dynamics and techniques for individual and group communications are covered. *It is recommended that this course be taken later in the program so that the student has the necessary technical skills and background from prior course work.*

CIS 208 Automated Project Management

3 Credits

Prerequisite: CIS 138 or prior experience with Windows applications

This course provides an in-depth exploration of project management techniques. The course emphasizes management strategies, goal setting, communication, tracking and reporting. Critical thinking, discussion and real-world projects are used as tools to explore the creation of task lists; resource management and leveling; use of milestones; Critical Path Methodology; PERT; and communications with team members, vendors, management and users. Real-world projects are also used to explore software to automate project management processes.

CIS 240 4GL Programming

3 Credits

Prerequisite: CIS 115

Corequisites: Computer Lab, CIS 116 is recommended

This course is an introduction to programming in a Fourth Generation Language. It covers design tools and concepts associated with a specific Fourth Generation Language. Topics include specifics of the language, its use and practical application in a programming environment. Students write several programs in the language that is currently available.

CIS 241 Advanced 4GL Programming

3 Credits

Prerequisite: CIS 240

Corequisite: Computer Lab

This course builds on the skills developed in CIS 240. Students write more complex programs in the language that is currently available.

CIS 245 Database Management Systems

3 Credits

Prerequisite: CIS 115 and (CIS 118 or CIS 140 or CIS 145)

Corequisite: Computer Lab

This course introduces the principles of database concepts. It includes relational, hierarchical and network database structure, query commands and command level programs. Students examine current issues including model selection, usage, implementations and maintenance. *(Offered spring semester only.)*

CIS 250 Local Area Networks (LAN)

2 Credits

Corequisite: CIS 115

This course discusses how local area networks are used and when they are appropriate. Topics include hardware and software, alternatives, compatibility issues, network configurations, security issues, transmission media and methods and linking to mainframe.

CIS 251 Local Area Network Administration

3 Credits

Prerequisites: CIS 110 and CIS 250

Corequisite: Computer Lab

This course introduces the concepts and techniques of administering a Local Area Network. Topics include setting up users/groups, directory structures, writing login scripts/menus and network printer control.

CIS 252 Multi-Vendor Networking

3 Credits

Prerequisites: CIS 110 and CIS 250

This course provides the practical information and guidance you need to plan and implement effective multi-vendor networks. This course allows one to evaluate inter-networking solutions for a wide range of PC, mini-computer, workstation and mainframe environments.

CIS 253 LAN Service and Support

3 Credits

Prerequisites: CIS 110 and CIS 250

Corequisite: CIS 251 and Computer Lab

This course introduces the concepts and techniques of servicing a Local Area Network. Topics include installing network interface cards, memory and storage devices; when to use bridges and routers, trouble shooting and diagnostics software.

CIS 254 Advanced LAN Administration

3 Credits

Prerequisites: CIS 251 and CIS 110 and a firm working knowledge of DOS

Corequisite: Computer Lab

This course is a continuation of CIS 251. Topics include advanced printing features, workstation shell generation and custom features, performance management techniques, file server commands, advanced utilities for setting up users, advanced supervisor utilities and network tracking to control user access. In addition, third-party utilities currently available to enhance network administration is reviewed.

CIS 260 COBOL Programming

3 Credits

Prerequisites: CIS 115 and CIS 116

Corequisite: Computer Lab

This is a computer programming course in which the major elements of the COBOL language are taught. Students design, code, debug and document solutions to a variety of business-oriented problems.

CIS 261 Advanced COBOL Programming

3 Credits

Prerequisite: CIS 260

Corequisite: Computer Lab

This course is a continuation of CIS 260. Emphasis is placed on teaching students the more sophisticated capabilities of COBOL, including the SORT verb and advanced table and file concepts.

CIS 263 CICS/COBOL Programming

3 Credits

Prerequisite: Any programming language other than BASIC or permission of instructor.

Corequisite: Computer Lab

This course introduces the basics of CICS Command Level Programming. Topics include an overview of what a CICS online system actually does, what the CICS language provides, terminal device concepts, programming techniques for mapping the terminal screen and programming techniques.

CIS 264 Advanced CICS/COBOL

3 Credits

Prerequisite: CIS 263

Corequisite: Computer Lab

This course introduces advanced concepts of CICS Command Level Programming. Topics include a review of CICS concepts, indexed files, VSAM, advanced mapping support, accessing DL/I segments from a CICS program, intersystem communication and multiregion operation.

CIS 265 IBM Assembly Language Programming

3 Credits

Prerequisites: Any programming language other than BASIC or permission of the instructor and MAT 121

Corequisite: Computer Lab

This course teaches the IBM System 370 Assembly Language (BAL) in a mainframe environment. Topics include system organization, data representation, control structures and program analysis and debugging techniques.

CIS 266 Advanced IBM Assembly Language Programming

3 Credits

Prerequisite: CIS 265 or permission of the instructor

Corequisite: Computer Lab

This course is a continuation of CIS 265. Topics include multi-level control break processing, register manipulation, masking, two-dimensional tables, creating and writing sorts, written documentation (external) and sequential file processing.

CIS 275 Telecommunications

3 Credits

Prerequisite: CIS 115

This course introduces discusses hardware devices, transmission characteristics, network configurations, codes/modes of transmission, software/protocols involved in telecommunications.

CIS 276 Systems Analysis and Design

5 Credits

Prerequisites: CIS 115 and one programming language

This course discusses the materials, techniques, procedures and human interrelations involved in developing a computerized business system. Topics include the systems approach, fact gathering techniques, forms design, input/output, file design, file organization, various charting techniques, system audits and controls, project management and implementation and evaluation. (*Offered spring semester only.*)

CIS 277 Operating Systems and JCL

3 Credits

Prerequisites: CIS 115 and one programming language other than BASIC

Corequisite: Computer Lab

This course covers the IBM OS/VS operating system and Job Control Language. It includes components of the operating system, JOB and EXEC in stream and DD statements for sequential, partitioned and indexed data sets, in stream and cataloged data sets, utility routines and the function of virtual storage. (*Offered in spring only.*)

CIS 278 Computer-Aided Software Engineering (CASE)

3 Credits

Prerequisite: CIS 115 or equivalent experience

Corequisite: Computer Lab

This course explores the philosophy, concepts and methods of Software Engineering in accordance with the Yourdon/DeMarco ideology. The approach to software development presented is currently known as a reasonable way to resolve information systems that are tending toward very large dimensions (50,000 lines of code and greater). Structured analysis and design method and tools are examined. The Excelerator software design package, by Intersolv, is used for analysis and design of course projects.

CIS 279 Management of Computer Information Systems

3 Credits

Prerequisites: CIS 115 and one programming language

This course introduces the techniques of managing computer-based information systems and information resources. Topics include hardware, software, personnel, control techniques and placement and integration of information system resources in the organization.

CIS 285 Maintenance Programming

3 Credits

Prerequisites: Proficiency in at least two programming languages and permission of the instructor

Corequisite: Computer Lab

This course enables students to maintain several existing programs. Students are responsible for modifications and conversions from one language to another.

CIS 288 Computer Information Center Usage

½-5 Credits

This course is for students desiring to use the Computer Information Center of the college for independent pursuit of educational goals. The amount of credit hours applied are determined by the instructor after the student's educational goals have been assessed. In no case is the course to be less than ½ credit. Each student interested in CIS 288 must meet with the course instructor before registering. The course does not apply toward any degree.

CIS 289 Internet Usage

1 Credit

Prerequisites: CIS 187 or CSC 160 or permission of instructor
Corequisites: Enrollment in at least 1.0 credit hours other than CIS 289

This course is for students desiring to use the Computer Information Center of the college to access the Internet for independent pursuit of educational goals. Each student interested in CIS 289 must meet with the course instructor before registering. The course does not apply toward any degree or certificate.

COMPUTER SCIENCE

Many of these courses will require concurrent enrollment in computer lab sections.

CSC Computer Lab

⅓-1 Credit per course

Many computer courses have a lab accompanying them. Students must register for the accompanying lab section to their computer course(s). Computer courses having an accompanying lab are designated with a corequisite of lab. Grading is on a credit/no-credit basis.

CSC 148 FORTRAN Programming

3 Credits

Corequisites: MAT 121 and Computer Lab

This course enables students to acquire programming skills using the FORTRAN programming language. Topics include program design, data types, looping structures, formatted and unformatted input/output, array and matrix processing, character manipulations, functions and subroutines and sequential and direct file applications.

CSC 160 Computer Science I

4 Credits

Corequisites: MAT 121 and Computer Lab

This course explores the discipline of computer science. Topics include algorithm development, data representation, arithmetic and logical expressions, sub-programs and input/output operations using a structured programming language. Intensive computer laboratory activities are required.

CSC 161 Computer Science II

4 Credits

Prerequisite: CSC 160

Corequisite: Computer Lab

This course continues the structured algorithm development and problem solving techniques begun in Computer Science I. Data structures are emphasized. Intensive computer laboratory activities are required.

CSC 165 Discrete Structures

3 Credits

Prerequisites: CSC 160 and MAT 121

This course prepares students for a fundamental understanding of computing and computer science. Topics include set theory, Boolean algebra, relations, functions, graph theory and techniques for formal reasoning.

CSC 173 Visual BASIC for Windows Programming

3 Credits

Prerequisites: CIS 115 or permission of instructor

C Language Programming (CSC 230) or another high-level language is recommended.

Corequisite: Computer lab

This course introduces programming and applications development for the Microsoft Windows environment using Visual BASIC for Windows. Students learn the use of objects, controls, properties, events and methods to develop applications that provide a graphical user interface for the user. Students also learn to develop functions and subroutines using structured Visual BASIC and build complete Windows executable applications.

CSC 174 Advanced Visual Basic for Windows Programming

3 Credits

Prerequisite: CSC 173 or permission of instructor

Corequisite: Computer Lab

This course is a continuation of CSC 173. Students develop more involved applications, work with more controls, and deal with advanced topics such as data structures, Dynamic Data Exchange and Object Linking and Embedding. To provide a more suitable interface to the Windows user, error trapping and error handling are implemented as well as providing customized help topics.

CSC 225 Computer Organization

4 Credits

Prerequisite: CSC 160

Corequisite: Computer Lab

This course covers the organization of a computer at the logic level. Topics include numbering systems, digital logic, digital systems, machine level representation of data, assembly level machine organization and memory system organization.

CSC 230 C Language Programming

3 Credits

Prerequisite: CIS 115 or permission of the instructor

Corequisite: Computer Lab

This course introduces the C programming language, which is a "mid-level" language whose economy of expression and data manipulation features allow a programmer to deal with the computer at a "low level."

CSC 231 Advanced C Language Programming

3 Credits

Prerequisite: CSC 230

Corequisite: Computer Lab

This course continues the study of C begun in CSC 230.

Topics include pointers, arrays, linked lists, stacks and queues, trees and advanced user interfaces such as menus, windows and cursor control.

CSC 233 Object-Oriented Programming in C++

3 Credits

Prerequisite: CSC 230

Corequisite: Computer Lab

This course enables students to learn object-oriented programming (OOP) techniques using the C++ language. The OOP paradigm is becoming the method of choice for software design. C++ is becoming the language of choice. OOP and C++ are an excellent combination for coping with the complexity of today's information systems needs. Encapsulation, inheritance, polymorphism information hiding, reusable components and OOP principles are thoroughly explored.

CSC 235 Visual C++ For Windows Programming

3 Credits

Prerequisite: CSC 161, 233 or permission of instructor

Corequisite: Computer Lab

This course introduces programming and applications development for the Microsoft Windows environment using Visual C++. Students learn the use of the Microsoft Foundation Class Library, view class and the document-view architecture. Students develop complete Windows executable applications using applications framework specific to Visual C++ tools, such as AppWizard, ClassWizard and AppStudio.

CSC 236 C Programming With Assembly Language

3 Credits

Prerequisites: CSC 230, 231, 265 or permission of instructor

Corequisite: Computer Lab

This course introduces students to programming in C with Assembly Language. Emphasis is on file handling, graphics, databases, advanced pointers, debugging and interfacing C with assembly language.

CSC 238 Introduction to Graphics Programming

3 Credits

Prerequisites: CIS 115 or CIS 160 or CSC 160 or CSC 230

Corequisite: Computer Lab

This course explores the concepts and techniques of programming computer graphic images. Topics include generating lines and curves, shading, writing patterns, colors, two point perspective, movement and 3-dimensional representation. Students prepare programs to generate graphic images in C or C++.

CSC 240 ADA* Programming

3 Credits

Corequisite: Computer Lab

This course teaches students to program in the DOD developed language ADA. Topics include overloading procedures/functions, the package concept, data types, scope and visibility, binding modes, variant records, discriminants and tasking.

CSC 241 Advanced ADA* Programming

3 Credits

Prerequisite: CSC 240

Corequisite: Computer Lab

This course continues the study of ADA begun in CSC 240.

Topics include implementing data structures, tasking for concurrent programming, the use of pragmas, generic packages and low-level programming. *Registered trademark of U.S. Government (AJPO)

CSC 255 Programming Languages

4 Credits

Prerequisite: CSC 161, 225

Corequisite: Computer Lab

This course is an overview of contemporary programming paradigms and their related languages. Topics include procedural, functional, logic, object-oriented and parallel processing.

CSC 265 PC Assembly Language Programming

3 Credits

Prerequisites: One programming course other than BASIC, MAT 121 and permission of instructor

Corequisite: Computer Lab

This course teaches the assembly language on the IBM PC. Topics include COM files, screen processing, string instructions, arithmetics (binary/ASCII/BCD), table processing and macros.

CONSTRUCTION TECHNOLOGY CLUSTER

Construction Technology Core

CON 100 Computers for Construction

2-12 Credits

This course introduces the use of computers in the construction trades. The emphasis is using computers for estimating construction projects and drawing and designing buildings with CAD programs.

CON 105 Blueprint Reading

3 Credits

This course introduces students to reading and interpreting blueprints for residential, commercial and industrial construction.

CON 151 Construction Process

4 Credits

This course covers the entire construction process including liens, contracts, bids, specifications, building permits and licensing, inspections and the Uniform Building Code. Intratrade coordination, remodeling and additions, practices, construction management and supervision, scheduling, solar building techniques, insulation concerns and multi-unit construction are introduced.

Air Conditioning, Heating and Refrigeration—HVAC

AHR 101 Heating for the Home Owner

2 Credits

This course is for homeowners who wish to maintain their own heating system. Minor repairs such as thermocouples and motor/belt replacement are covered.

AHR 102 Heating Fundamentals

4 Credits

This course examines the properties of gas, gas controls, gas burners, gas piping. It also covers combustion air and venting gas-fired appliances. Study of the Uniform Mechanical Code related to these areas and heat loss calculations are also covered.

AHR 105 Electricity for HVAC/R

4 Credits

This course covers fundamentals of electricity, measuring instruments, Ohm's Law, series and parallel circuits, components, basic electrical motors and application to HVAC/R.

AHR 110 Refrigeration Fundamentals

4 Credits

Corequisite: AHR 105

This course covers basic refrigeration theory and practice, safety, hermetic systems, refrigerants and tools and equipment used in refrigeration servicing.

AHR 120 Air Conditioning Systems

6 Credits

Prerequisites: AHR 105, 110 or field experience

Corequisite: AHR 132

This course covers theory/practices used in servicing air conditioning systems. Emphasis is placed on heating and cooling calculations, duct sizing, air flow demand, refrigerant recovery practices and special control devices.

AHR 125 Refrigerant Recovery Training

1 Credit

This course explains the laws regarding refrigerant recovery. It includes hands-on use of recovery equipment. Upon successful completion of this course students are prepared to take the EPA certification test.

AHR 132 Air Conditioning and Refrigeration Controls

4 Credits

Prerequisite: AHR 105 or permission of instructor

This course is an extension of AHR 105. It applies the knowledge of basic electricity to controls related to air conditioning and refrigeration equipment. The course also works on reading and drawing schematic and ladder diagrams.

AHR 141 Residential Forced Air Heating

4 Credits

Prerequisites: AHR 102, 105

This course covers the operation, maintenance and repair of residential forced air heating systems. It examines air to air heat exchanges, humidification, air cleaning systems, analyzing flue gas and testing for furnace efficiency.

AHR 151 Low Pressure Steam Heating

4 Credits

Prerequisites: AHR 102, 105

This course examines low pressure steam systems including boilers, piping, heat convectors. Repair and maintenance of these systems is covered as well as theory behind their operation. Boiler feed water and condensate systems are also discussed.

AHR 162 Heating Controls

4 Credits

Prerequisite: AHR 105 or permission of instructor

This course is an extension of AHR 105. It applies the knowledge of Basic Electricity to Controls related to heating equipment. This includes boilers and furnaces with emphasis on ignition and controls related to high efficiency heating equipment. Course work includes reading and drawing ladder and schematic wiring diagrams.

AHR 200 HVAC/R Controls II

4 Credits

Prerequisite: AHR 132

This course covers advanced electrical controls. Emphasis is on pneumatic controls and systems used in commercial and industrial HVAC/R equipment.

AHR 201 Advanced Refrigeration

6 Credits

Prerequisites: AHR 105, 110

This course covers fundamentals of commercial refrigeration equipment with emphasis on service and installation of bulk storage equipment and low or medium temperature such as walk-in, display cases, ice machines and ice cream machines.

AHR 206 Hot Water Heating Systems

4 Credits

Prerequisites: AHR 102, 105

This course covers the theory of operation behind these systems, as well as installation, maintenance and repair. It also examines air elimination, circulator pump and pipe sizing. Boiler and heat convtor sizing are also discussed.

AHR 211 Stationary Engineer

AHR 212 Boiler Operator

AHR 213 Journeyman Steam Fitter

AHR 214 Journeyman Boiler Maker

AHR 215 Journeyman Heating and Ventilating

2-4 Credits

These courses cover the Uniform Mechanical Code and city codes where these certificates are required.

AHR 216 Uniform Mechanical Code

2-4 Credits

This course reviews in detail the Uniform Mechanical Code. It is intended to give those entering the HVAC/R trade as well as those trades people taking certification examinations a sound knowledge of this code.

AHR 217 Refrigeration Operator
AHR 218 Journeyman Refrigeration

2-4 Credits

The above two courses cover the Uniform Mechanical Code and city codes where these certificates are required.

AHR 222 Evaporative Cooling Systems and Water Treatment
4 Credits

This course covers aspects of commercial and residential evaporative cooling systems. Areas examined include maintenance to these systems, water treatment, sizing, pumps and piping.

AHR 225 Indoor Air Quality and Ventilation
4 Credits

This course is for the experienced HVAC contractor and service technician. It informs students of problems associated with indoor air quality and methods for improvement of the indoor environment. The Uniform Mechanical Code and other national standards are covered as well.

AHR 239 Fundamental Heating for the Building Maintenance Person
4 Credits

This course is for the building maintenance person who possesses experience with electromechanical devices and applies it to heating equipment. Forced air, hot water and steam systems are examined.

AHR 240 Commercial Heating Systems
4 Credits

Prerequisites: AHR 102, 132

This course covers the maintenance and repair of the typical heating systems used in commercial buildings and multi-family dwellings. This course includes study in warm air and hydronic systems. Flame safeguard systems are also studied. Students interested in this course must have previous experience with residential heating systems.

AHR 278 Advanced HVAC/R Study
3-12 Credits

Prerequisite: Permission of instructor

Enrollment in this course is limited to advanced HVAC/R students.

Bricklaying

BRI 120 Bricklaying for Construction Trades
3 Credits

This course presents an orientation into the field of bricklaying. It also covers the general principles, initial techniques and skill development for bricklaying and how bricklaying relates to the various trades are presented.

BRI 126 Solar Walls and Fireplaces
3 Credits

Prerequisite: BRI 120

This course teaches trompe wall and solid masonry construction and also Russian fireplace construction that includes basic and special types with emphasis on heatilators and heat exchangers.

BRI 211 Fireplace Technology for Solar
10 Credits

This course covers fireplace codes and construction of new energy fireplaces.

Carpentry (Also see Fine Woodworking)

Most courses have no prerequisites and prior experience is not required.

CAR 107 Site Preparation
1-4 Credits

This course covers site characteristics including governmental and utilities regulation, plot plans, leveling tools, site selection, preparation and layout.

CAR 108 Foundation Systems
1-4 Credits

This course explores the different types of foundations utilized in construction, perimeter drainage, estimating materials, steel reinforcement, precast construction and forming techniques.

CAR 109 Floor Framing
1-4 Credits

This course presents types of wood framing, structural spans and loading, girders and beams, sills, estimation, subflooring, joist connections, openings and special framing situations.

CAR 110 Wall Framing
1-4 Credits

This course teaches exterior wall layout, assembly, erection, bracing, estimation, sheathing and partition construction.

CAR 111 Roof Framing
1-4 Credits

This course covers roof styles, terminology, rafters, trusses, roof sheathing, ceiling joists, layout and estimation and construction.

CAR 112 Stair Framing
1-4 Credits

This course covers stair design, estimation, layout and construction for a variety of different stair types.

CAR 113 Framing Labs

1-8 Credits

Prerequisites: CAR 109, 110, 111 or 112 and permission of instructor

This course covers construction of a variety of different structural frameworks of various complexities. Timber frames, domes, A-frame and log structures may be explained as well as specific framing problems such as different building shapes and unusual construction variations.

CAR 114 Formwork Lab

1-8 Credits

Prerequisites: CAR 108 and permission of instructor

This course covers construction of a great variety of form types; floating forms, edge forms on grade, wall forms, on grade curb forms, vertical piers and columns, horizontal beam forms, above grade slabs systems, fireproof encasement forms, stair forms, bridge deck forms and specialty forms.

CAR 150 Construction Materials

5 Credits

This course examines the qualities, uses and characteristics of wood, building materials, lumber grading and defects of hard and soft woods, estimating ordering, pricing, fasteners, adhesives, manufactured wood products, steels, vinyls and aluminum and their applications in construction process.

CAR 152 Tools: Hand and Power, Portable and Stationary

4 Credits

This course covers the safe use and care of hand and power, portable and stationary tools. Through tool utilization skills are developed to pass competency and safety tests for each tool.

CAR 200 Exterior Trim

1-4 Credits

This course teaches cornice and rake construction, corner, window and door trim, installation of soffit, frieze, fascia and similar trim items and includes estimation and proper selection.

CAR 201 Commercial Roofing Project

1-8 Credits

Prerequisite: Permission of instructor

This course teaches the different varieties of commercial roofing products, their installation, estimation and maintenance.

CAR 202 Exterior Finishes Lab

1-8 Credits

Prerequisites: CAR 200, 205, 206 or 207 and permission of instructor

This course teaches the selection, construction and estimation of a variety of exterior finishes on all portions of a building exterior, including some unique Colorado finishes. Renovation, remodeling and energy rehab may be explored.

CAR 203 Finishes and Refinishing

1-4 Credits

This course examines finishes on buildings (interior and exterior) and new and renovated furnishings.

CAR 205 Exterior Doors and Windows

1-4 Credits

This course covers types of doors, operating and fixed windows, skylights, glazing methods, installation, estimation and construction. This course also includes discussion of chimneys, fireplaces and wood stoves.

CAR 206 Exterior Wall Coverings

1-4 Credits

This course covers all manner of materials utilized as exterior vertical finishes and their installation and estimating including thermal and sound insulation, vapor and fire barriers, siding types and methodologies.

CAR 207 Roof Coverings

1-4 Credits

This course covers application techniques and estimation of asphalt and wood roofing products and accessories including gutters and flashing.

CAR 208 Interior Finishes

1-4 Credits

This course covers interior trim materials including base-board, casing, paneling, interior doors and shelving. This course also discusses drywall hanging, finishing and texturing, ceiling tile, suspended ceilings, plastering, finish flooring, hardware, railings, door hanging and estimation.

CAR 209 Cabinetmaking

1-4 Credits

This course covers cabinet types, kitchen and cabinet design, layout, construction, hardware installation, materials, power tool use, accessories and estimation.

CAR 211 Shop Carpentry

1-8 Credits

Prerequisite: Permission of instructor

This course is for the non-site, shop carpenter and includes jig and patternmaking; stationary power tool maintenance and adjustment; machining of woods; and techniques unique to shops, cabinetmakers and millworkers.

CAR 213 Furniture Making

1-4 Credits

This course teaches furniture design, construction techniques, material selection, joinery, bending, laminating, veneerwork and casework details.

CAR 215 Cabinet Installation, Countertops and Built-Ins

1-4 Credits

This course covers the selection and installation of factory built cabinets, countertops, built-ins and terminology, types, design, estimation and construction.

CAR 216 Drywall Construction

1-4 Credits

This course covers the use of gypsum wall board and the techniques of concealing joints and fasteners, construction methods, estimation and a variety of texture finishes.

CAR 217 Advanced Cabinetmaking

1-8 Credits

This course expands skills taught in CAR 209. It includes a review of the types of joints, gluing and hardware used in cabinets. It also familiarizes students with various types/designs of cabinets used in residential/commercial construction. Construction of shop-built cabinets including a variety of door styles and the proper use of power tools for creating various designs. The uses and application of plastic laminates are explored and students learn the proper installation of shop-built cabinets.

CAR 218 Commercial and Tenant Finishes

1-4 Credits

This course deals with dropped ceilings, steel stud partitions, estimating, scheduling and the interrelations of the mechanical trades associated in most commercial, retail and other leased spaces.

CAR 220 Remodeling, Renovation and Additions

1-4 Credits

This course covers conversions of attic and basement spaces to usable living spaces and additions or renovation to existing structures, including kitchens and baths. Materials scheduling, estimation and construction methods are investigated.

CAR 221 Building Maintenance

1-4 Credits

This course examines the maintenance of homes, apartments and commercial buildings—from the handyman to building superintendent, from fences and roofing repairs to plumbing and heating maintenance. This course enables students to be aware of what to expect in keeping buildings operating.

CAR 223 Owner-Built Homes and Owner Contracting

1-5 Credits

This course explores the areas of the owners/builders making a home for themselves from inception to certificate of occupancy, owner-built or the owner as a builder and selecting contractors to perform the actual construction. The problems and common pitfalls of the owner-built home are also examined.

CAR 224 Contracting and the Construction Business

1-5 Credits

This course is for students entering and/or those already in the construction industry and desire to know what it entails. Job costing, overhead, insurance, when to subcontract, maintaining your own crews, cost estimation, bidding, contracts and liability are examined.

CAR 225 Building Codes, Permits, Inspection, Compliance and Variances

1-5 Credits

This course covers the governmental regulations concerning building and the process through which these regulations are enforced including whom to talk to, what to do, when to do the inspection process, how to obtain a building permit and the process of securing a variance.

CAR 226 Contractor Licensing

1-5 Credits

This course prepares students to take the contractor's license exam in their municipality.

CAR 227 Construction Coordination

1-5 Credits

This course covers the non-trade aspects of a construction project. Time, cost and labor management as well as construction techniques are included.

CAR 228 Cost Estimation

1-5 Credits

This course examines each type of estimating and provides an opportunity to enhance and utilize these methods. Ball parking, unit costing, stick counts and computerized estimating tools are also explored.

CAR 229 Contractors' and Builders' Seminar

1-4 Credits

This course reviews current techniques, materials and problems experienced by those working as competitors.

CAR 230 Construction Techniques for More Effective Building

1-4 Credits

This course explores the new materials and techniques that allow for more effective use of space, energy and materials. From foundations through finishes there are a wide assortment of innovations available to the home owner, builder and remodeler that benefit any building project.

CAR 231 Highway and Bridge Construction

1-4 Credits

This course concerns highway construction, terminology, methods and standard practice. Heavy construction estimation procedures, scheduling organization and equipment are examined.

CAR 232 Carpentry Lab

1-8 Credits

Prerequisite: Permission of instructor

This course allows students to specialize in a chosen area of study requiring a written proposal, plans and specifications with a particular construction project as an outcome.

CAR 233 Technical Project for a Specialty Trade

1-8 Credits

Prerequisite: Permission of instructor

This course requires students to make a written proposal to explore an area of construction through research and a project. An example of a topic might be finish flooring with projects that resulted in installing ceramic tile, several types of carpet, sheet goods and wood strip and parquet floorings. Upholstery, plaster covering, log cabin construction, round windows, wood carving might all be appropriate projects.

Electricity

EIC 115 Electrical Planning

3 Credits

Prerequisite: EIC 105, CON 105 or permission of instructor
This course teaches the planning of electrical system installations starting from the blueprints through to the completed job, preparation of material lists, job sheets and time schedules for various phases of construction.

EIC 118 Basics of AC and DC Electricity

3 Credits

This course teaches resistance, current, voltage and power in AC and DC circuits; measurements; computations of series and parallel circuits; circuit analysis; and troubleshooting with basic test equipment.

EIC 121 Electrical Installations I

3 Credits

This course teaches residential building wiring in conformance with the current National Electric Code and local codes, using nonmetallic cable. Proper use of tools and safety is emphasized.

EIC 122 Electrical Installations II

3 Credits

Prerequisite: EIC 121 or permission of instructor
This course teaches commercial and industrial building wiring in conformance with the current National Electric Code and local codes using electric metallic tubing and other raceways. Proper use of tools and safety is emphasized.

EIC 131 National Electric Code I

3 Credits

The National Electric Code and local code requirements for electrical installation are taught in this course.

EIC 132 National Electric Code II

3 Credits

Prerequisite: EIC 131 or permission of instructor
This course is a continuation of EIC 131.

EIC 151 DC Circuit Fundamentals

6 Credits

Prerequisite: MAT 100 or equivalent
This course enables students to learn the principles of DC electricity and magnetism with emphasis on Ohm's, Kirchoff's and Watt's laws to analyze circuits with regard to voltage, current and power; the use of common instruments for measurements; and electrical safety practices.

EIC 152 AC Circuit Fundamentals

6 Credits

Prerequisite: EIC 151 or permission of instructor
This course enables students to learn the principles of AC electricity and magnetism with emphasis on single phase inductive and capacitive circuits; the use of phasors to represent AC quantities; the concept of reactive volt-amperes and power factor; the use of instruments including VOM's and oscilloscopes for measurements. Safety considerations are stressed.

EIC 153 Polyphase Circuit Fundamentals

3 Credits

Prerequisite: Concurrent registration in EIC 152 or permission of instructor

This course explores the principles of polyphase alternating current systems; the use of phasors to represent AC quantities in polyphase balanced and unbalanced systems; Wye and Delta circuit configurations; metering of polyphase quantities. Safety procedures are stressed.

EIC 161 Solid State Devices and Circuits

6 Credits

Prerequisites: EIC 151, 152, 153 or permission of instructor
This course teaches the basic properties of diodes, transistors, triacs, SCRs and other solid state devices in this class. Students become involved in the applications of solid state devices in control and power conversion and the circuits in equipment likely to be encountered in power installations.

EIC 200 Electrical Code Calculations

3 Credits

This course covers calculations used in the application of the National Electric Code, sizing of branch circuit and feeder conductors and calculation of ratings of protective devices are emphasized.

EIC 201 Transformers: Theory and Applications

3 Credits

Prerequisite: EIC 153 or permission of instructor
This course covers the theory of operation of power and instrument transformers. Single and polyphase, circuit connections, voltage regulation and short circuit calculations are verified in the laboratory. Operating and overload characteristics of dry and liquid filled transformers and their maintenance requirements are included in this course. Proper installation according to the National Electric Code and electrical safety is stressed.

EIC 202 DC Machines: Theory and Applications

3 Credits

Prerequisite: EIC 151 or permission of instructor
This course is a comprehensive study of the characteristics of D.C. motors and generators and their application to industrial uses. Laboratory work includes parallel operation of generators, speed/torque relationship in shunt, compound and series motors and operation of variable speed drives. Installation requirements of the National Electrical Code, maintenance and safety considerations are also stressed.

EIC 203 AC Machines: Theory and Applications

3 Credits

Prerequisite: EIC 153 or permission of instructor
This course is a comprehensive study of the characteristics of polyphase and single phase machines and their applications to industrial uses. Course lecture and text material are supplemented by laboratory work including parallel operation of alternators, operation of synchronous motors to correct power factor, induction motor performance tests and starting methods. Installation requirements of the National Electrical Code, maintenance and safety considerations are all an integral part.

EIC 207 Industrial Electrical Controls I

3 Credits

Prerequisite: EIC 203 or permission of instructor

This course covers the application of electrical and electro-mechanical sensing/control devices; heating, ventilating and air conditioning applications, motor control, conveyor drives and other industrial applications. Students design control systems to meet assigned conditions, use the principles of relay logic to prepare correct ladder diagrams and wire up, test and troubleshoot their systems in the laboratory.

Accuracy, safety and National Electrical Code requirements are stressed.

EIC 208 Advanced National Electrical Code

3 Credits

Prerequisite: Permission of instructor

This is an advanced National Electrical Code course for the in-plant electrician. Emphasis is on the interpretation of the NEC rules that apply to industrial/commercial installations. Maintenance electricians and residential wiremen desiring to upgrade their knowledge of these rules will benefit from this class.

EIC 209 Advanced Code Calculations

3 Credits

Prerequisite: Permission of instructor

This course is an extension of EIC-200. Calculations for sizing conductors, conduits, fittings, protective devices, and relays related to branch circuits and feeders for motor loads are emphasized. This course also explores other loads as they apply to industrial/commercial applications. In addition, sizing of transformers and power factor correction calculations are covered.

EIC 213 Power Transmission and Distribution

3 Credits

Prerequisite: EIC 153 or permission of instructor

This course studies modern methods of effectively delivering electrical energy to the point of utilization from the point of generation. Major topics are line and cable characteristics, voltage drop and power loss metering, power factor correction, system protection, system demand and system stability. Text and lecture content is supplemented by laboratory work. National Electric Code requirements, installation and maintenance considerations and electrical safety are an integral part of this course.

EIC 216 Advanced Electrical Planning

3 Credits

This course teaches the planning and layout of large commercial and industrial electrical installations.

EIC 217 Electrical Estimating and Costing

3 Credits

This course covers fundamentals of electrical estimating, material takeoffs from prints, labor hours required for various types of installations, material loss allowances and scheduling to insure orderly progress of work.

EIC 218 Electrical Instruments and Measurements

3 Credits

Prerequisite: Permission of instructor

This course covers proper techniques for the use of electrical instruments including oscilloscopes, potentiometer, thermocouples and recording meters. Instrument transformers for journeymen and in-plant electricians.

EIC 219 Industrial Electrical Controls II

3 Credits

Prerequisite: EIC 161 and 207 or permission of instructor

This course covers the use of solid-state control equipment, primarily the programmable controller and associated solid state sensors to control equipment, machinery or complete processes. Major topics are: Concepts of solid state logic, characteristics of solid state sensors, conversions of relay logic control systems to programmable control systems and micro-processor based systems and remote control of processes. Students are required to design, implement and test control systems in the laboratory to meet specifically assigned control problems. Accuracy, safety and National Electrical Code requirements are emphasized.

Fine Woodworking (Also see Carpentry.)**FIW 105 Joinery**

1-4 Credits

This course explores different types of wood connections utilizing both hand and power tool techniques in frame and carcass joinery. Students are expected to cut, fit and assemble projects to demonstrate their knowledge.

FIW 106 Plane Making

1-4 Credits

This course explores the tradition of a craftsman making their own tools and offers an explanation of that ideal within the creation of hand planes. Students determine what type of construction techniques to use in building their project through research of old methods and examination of current practices with the final outcome demonstrated by using their new tool.

FIW 108 Toolmaking and Jigs

1-8 Credits

This course is intended to broaden the capabilities, speed and accuracy of the woodworker through the utilization of jigs and specialty tools. Students are expected to construct several projects of progressing difficulty. Examples might be a box joint jig, a router table, a mock dovetail jig and spring pole lathe. Instructor involvement is required for selection of projects.

FIW 110 Furniture Repair

1-8 Credits

This course recognizes the need to repair and restore furniture and teaches students how to make moulds, repair veneers, replace broken and missing pieces and reassemble a reconditioned piece. Students are expected to provide furniture of sufficient complexity to challenge their skill level. Joinery, carving, stripping and refinishing are all appropriate to encounter in this course.

FIW 115 Advanced Joinery

1-4 Credits

This course examines all types of joinery from decorative to the most complex of hand and machine cutting techniques and learn their respective qualities in regards to strength, material and adhesive selection, wood movement and the properties of different joints. A project incorporating many of these joints will be expected.

FIW 116 Cabroile Leg and Queen Anne Furniture

1-8 Credits

This course uses the Queen Anne style to force the furniture-maker to depart from rectilinear form and create curves and bends in wood. Patternmaking and building from drawings to create a chair, table, cabinet or similar piece is expected.

FIW 118 Lathe Turnings

1-4 Credits

This course through spindle and face plate turnings the capacity of the lathe are examined. Glued-up, green and off-center turnings may all be tried as well as duplication of multiple parts. Sharpening, various finishing techniques and tool selection are also examined.

FIW 120 Advanced Furniture and Cabinet Construction

1-8 Credits

After completion of this course students should have produced a finished piece of salable quality with a demonstrated understanding of the materials available, their sources, shop drawings, various construction and finishing methods and reasonable design and technical skills.

FIW 122 Wood Carving

1-4 Credits

This course allows students to experiment with knife and gauge to discover the many possibilities of wood decoration through carving and the qualities of numerous materials. Ultimately students are expected to produce samples of chip and relief carvings to demonstrate what's been learned.

FIW 125 Finishing Wood

1-4 Credits

This course allows students to research the wide variety of finishes available from the oldest formulations to the bewildering array of modern films and stains. Students experiment with a representative sampling of colorations and surface finishes on numerous types of woods and finish a piece with a selected process.

FIW 128 Doormaking

1-8 Credits

This course involves the planning, design, selection and purchase of materials, construction, finishing and hanging of a door the student has made. Assorted styles of door construction, joinery, glues and fabrication technique are examined.

FIW 150 Period Furniture Reproduction

1-8 Credits

This course involves researching and selecting a period and style of furnituremaking from the biblical era to contemporary times and building a reproduction piece. Students examine "then and now" techniques and materials while selecting the construction process for their individual piece. Period reproduction becomes musical instruments, boats or other items as students become involved in their research.

FIW 152 Tools: Hand and Power, Portable and Stationary

4 Credits

This course covers the safe use and care of hand and power tools—both portable and stationary. Through tool utilization, necessary skills are developed to pass competency and safety tests for each tool.

FIW 200 Veneering and Marquetry

1-4 Credits

This course covers the surface decoration of wood, both edge and face treatments through the use of thin, often expensive, exotic or figured woods. Man-made and solid substrates for veneering are examined as well as available patterns, styles, marquetry techniques and creating multiple layer banding for a project.

FIW 205 Tablemaking

1-8 Credits

This course involves the study and construction of flat surface utilizing one of the wide variety of potential styles, sizes, materials and techniques available. Solid and sheet goods are examined as well alternative construction methods and their various qualities. Fastenings, edging and movement concerns are explored.

FIW 206 Chairmaking

1-8 Credits

This course utilizes chair construction to examine some of the alternatives of machine and hand-tool construction as illustrated by seat shaping through router surfacing vs inshave use, for examples. Spindle turnings, spokeshave use and compound angles may be encountered in constructing a chair. Chair style often dictates resolving construction dilemmas such as jointing compound curves and jig making for tapered legs with fluting or reeding.

FIW 209 Cabinetmaking

1-4 Credits

This course covers cabinet types, kitchen and cabinet design, layout, construction, hardware installation, materials, power tool use, accessories and estimation.

FIW 210 Bending and Laminations

1-4 Credits

This course involves the process of curving natural and man-made panels through a variety of methods including spaced kerfs, cold lamination and steambending. Form construction, various qualities of different wood species and adhesive selection are studied.

FIW 211 Shop Carpentry

1-8 Credits

Prerequisite: Permission of instructor

This course is for the non-site, shop carpenter and includes jig and patternmaking; stationary power tool maintenance and adjustment; machining of woods; and techniques unique to shops, cabinetmakers and millworkers.

FIW 213 Furniture Making

1-4 Credits

This course teaches furniture design, construction techniques, material selection, joinery, bending, laminating, veneerwork and casework details.

FIW 215 Cabinet Installation, Countertops and Built-Ins

1-4 Credits

This course covers the selection and installation of factory built cabinets, countertops, built-ins and terminology, types, design, estimation and construction.

FIW 217 Advanced Cabinetmaking

1-8 Credits

This course expands the basic skills taught in FIW 209. It includes a review of the types of joints, gluing and hardware used in cabinets. Student become familiar with various types and designs of cabinets used in residential and commercial construction. Construction of shop-built cabinets may include a variety of door styles and include the proper use of power tools for creating various designs. The uses and application of plastic laminates are explored and students learn the proper installation of shop-built cabinets.

Plumbing**PLU 100 Introduction to Plumbing**

3 Credits

Prerequisite: Fundamental math skills

This course introduces plumbing techniques and skill development, plumbing drawings using 30/60 isometric three-dimensional system and material list from drawing.

PLU 106 Waste and Vent Layout and Code Requirements

5 Credits

Prerequisite: PLU 100 or permission of instructor

This course introduces students to the installation of residential and commercial plumbing jobs using soil pipe, plastic or copper tubing to meet code requirements, venting systems, making material lists and installation.

PLU 107 Water Piping Methods and Back Flow Prevention

3 Credits

Prerequisite: PLU 100 or permission of the instructor

This course is an introduction to drawing water piping systems, sizing, installation and brazing and silver soldering methods. This course also covers back flow prevention.

PLU 109 Residential Plumbing

4 Credits

Prerequisite: PLU 100, 106, 107 or permission of the instructor

This course enables students to draw complete soil, waste, vent, water and gas systems which meet codes and safety procedures and develop skills in installations.

PLU 110 Finish and Installation of Plumbing Fixtures

3 Credits

Prerequisite: PLU 100, 107 or permission of the instructor

This course introduces installing plumbing fixtures on existing rough-ins to meet all code and safety requirements.

PLU 116 Plumbing Repair

3 Credits

This course introduces repairing, servicing or replacing plumbing equipment.

PLU 206 Hot Water Heating Systems

4 Credits

Prerequisite: PLU 107; AHR 102, 105 or permission of the instructor

This course covers the theory of operation behind these systems, as well as installation, maintenance and repair. It also examines: air elimination, circulator pump and pipe sizing. Boiler and heat convertor sizing are discussed.

PLU 207 Basic Solar Energy

3 Credits

Prerequisites: PLU 107 and 206

This course includes drawing and installation of domestic solar water heating systems.

PLU 208 Advanced Solar Energy

3 Credits

This course includes solar panel construction, installing complete solar heating or domestic hot water systems, with the study of the variables and flexibility of the system.

PLU 210 Commercial Layout and Code Multi-Story Projects

3 Credits

Prerequisite: PLU 106

This course introduces students to commercial and multi-story projects. Installations in commercial work and code applications for these structures are reviewed.

PLU 216 Uniform Plumbing Code

2-3 Credits

Prerequisite: PLU 106 or permission of instructor

This course presents the Uniform Plumbing Code and Colorado State Plumbing Code, the proper interpretation of the Code and the need to enforce it. This course is designed to help plumbers pass state plumbing licensing examinations.

PLU 225 Technical Project

6 Credits

This course enables students to participate in individual study on a special project which is related to the plumbing program. This technical project consists of: a written and approved proposal and scheduled progress reports.

Solar Construction Technology**ENT 125 Basic Solar Design and Layout**

3 Credits

Prerequisite: See solar construction technology advisor.

This course presents a practical design approach to solar energy systems and collector piping and ducting layouts as they apply to buildings. This course also explores construction techniques for new and retrofit applications.

ENT 126 Solar Collectors

3 Credits

Prerequisite: See solar construction technology advisor

This course introduces the principles of design and operation of solar panel arrays, material analysis and construction features of flat plate collectors, mounting techniques and construction of a basic air and liquid collector array, and distribution from collectors to storage, and building, mechanical and plumbing codes as they apply to the solar industry.

ENT 127 Solar Systems Estimating and Marketing

4 Credits

Prerequisites: ENT 125, 126 or see solar construction technology advisor

This course covers cost estimating for active solar systems and marketing techniques for sales of solar systems.

ENT 141 Passive Solar Systems I

3 Credits

Prerequisites: See solar construction technology advisor

This course presents a state-of-the-art study on the design and installation techniques of passive/natural solar energy systems.

ENT 145 Passive Solar Retrofit

3 Credits

Prerequisites: ENT 141; PLU 207 and see solar construction technology advisor

This course explores the design principles and primary features behind a wide range of passive solar options for existing homes. The course also provides instruction concerning the site survey and energy conservation measures prior to installing retrofit design and construction details on various passive retrofit projects. Analysis of performance of each type of retrofit are also taught.

ENT 153 Renewable Energy Construction

4 Credits

This course introduces solar construction techniques, terminology and construction materials in detail. Moisture and air quality in tight construction are also covered, as well as an overview of the building shell and interior walls.

ENT 225 Solar Domestic Hot Water Systems

3 Credits

Prerequisites: PLU 107, 207 and see solar construction technology advisor

This course provides a working knowledge of sizing, installation, maintenance of solar domestic hot water systems, residential applications, components, parts and cost efficiency analysis.

ENT 226 Solar Panel Installation

4 Credits

Prerequisites: ENT 126; PLU 100 and see solar construction technology advisor

This course presents the installation of all types of panels on all types of roofs. Vertical wall mounting techniques are also covered.

ENT 227 Site-Built Solar Systems

3 Credits

Prerequisites: See solar construction technology advisor

This course introduces construction of site-built collectors on roofs and walls that are integrated harmoniously with the building structure. Information on liquid and air collectors, waterwalls and south wall glazing techniques applicable on both regular and modular construction is provided. Also, this course covers codes, materials and cost efficiency analysis.

ENT 295 Passive Solar Design Project

5 Credits

Prerequisite: Permission of instructor

This course is a technical project consisting of: (1) a written and approved proposal, (2) scheduled progress reports and (3) a finalized set of drawings.

ENT 298 Solar Lab

3-12 Credits

Prerequisites: Limited to second-year students, permission of instructor

This course enables students to improve their basic solar construction skills, such as soldering, brazing, use of power tools, panel design and construction.

Apprentice-Related Courses

All apprentice-related courses are taught in cooperation with the Colorado Industry Training Council. Students must have the approval of the Chair of Construction Technology.

Carpenter I

This course explores safety-crane and rigging traffic, carpentry math, nails, fasteners and adhesives, wood building materials, hand tools and stationary and portable power tools. In addition, this course studies site layout, reading plans and elevations, concrete and reinforced concrete, concrete handling and placement and forming foundations and flatwork.

Carpenter II

This course explores sketching and visualization, field engineering principles and supervision. In addition, reinforcing concrete, patented forms/heavy formwork, wall systems, tilt up, structural steel, shoring and formwork are discussed.

Carpenter III

This course presents floor, wall and roof systems, as well as stair construction, interior finish, exterior finish and roofing application.

Carpenter IV

This course presents advanced supervision, laser instruments and introduces the Uniform Building Code. In addition, this course covers water and damp proofing, finish stairs, supplement to ceiling systems, metal studs and drywall, interior finish, wall and floor specialties and cabinetry.

Drywall Applicator (Year One)

This course introduces to the trade, tools and materials of the trade, drywall systems and blueprints. Topics include safety, human relations, trade math, material handling and storage, framing materials and fasteners, basic non-load bearing wall framing, ceiling framing, furring, hanging materials and fasteners and wallboard hanging on wood.

Drywall Applicator (Year Two)

This course presents thermal insulation and sound control, trim installation, safety, advanced trade math and layout. It also includes load-bearing framing, installing hollow metal, demountable partitions, special framing conditions, and pre-finished gypsum board, wallboard hanging on metal walls and ceilings, laminated applications, angles and curves, laser instruments, interior finish (ceiling systems), supplement to ceiling systems and finishing procedures.

Electrical I

This course presents general safety, tools of the electrical trade, contractor owned tools, trade history and introduces electrical theory, conduit outlet boxes and the National Electrical Code. This course also explores the sources of electricity, trade math, laws of electricity, series circuits, parallel circuits and series parallel circuits. Other topics include organization of the National Electrical Code, magnetism laws, wire devices, service boxes, connectors, conduit bending, conductors and insulators, insulation and pulling large and small wires.

Electrical II

This course covers blueprint symbols, blueprint reading, schedules and specifications, instruments and meters, characteristics of induction and AC capacitance. Other topics include series circuits (AC), parallel circuits (AC), overcurrent protection, fuses, circuit breakers, ducting, installing cable tray, wireways and surface metal raceways, main service equipment subpanels, grounding conductors, metallic sheathed cable and special wires and cords. In addition, this course introduces alternating current, Ohm's Law for Alternating Current, the theory of grounding and the general requirements of wiring.

Electrical III

This course presents hazardous locations, electrical safety, reading diagrams, lighting fundamentals, fluorescent lighting, high intensity discharge lighting, fundamentals of DC motors, DC motors and generators, fixed generators and portable generators. This course also explores residential calculations, fixed electric space heating, fundamentals of AC motors, control of motor starting, single phase motors and polyphase motors. In addition, this course covers the general requirements for commercial wiring and busways, as well as motor circuit: code, types of motors, wire sizing, overload protection, motor connections and overcurrent protection.

Electrical IV

This course explores tool and material takeoffs, electrical safety, reading diagrams, journey person responsibilities, low voltage lighting control, emergency lighting, special systems, transformer connections, solid state fundamentals and advanced meter applications. This course also covers high voltage fundamentals, special occupancies and equipment, resistive heating cables and special terminations.

Plumber and Pipefitter

This course presents both the plumbing and pipefitting trades. For plumbing, it covers safety measures, plumbing materials and tools; low pressure boilers; blueprint reading; mathematics and metric information. This course also covers connecting, fitting, jointing, installing and supporting pipe; fixtures and appliances; sanitary/non-sanitary drainage vents and storm drainage; traps, cleanouts and backwater valves; water supply sizing and distributions; general regulations for steam/hotwater heating; testing, inspecting and the Uniform Plumbing Code.

For the pipefitting trade, this course presents piping systems, including metal/nonmetallic piping, tubing, hoses, fittings, common/specialized valves, strainers, filters and traps and accessories. This course also covers simple and rolling offsets, including the invisible box method; use of standard pipefitting tables; calculation of cut lengths through screwed, flanged and welded fittings; use of steel square to calculate the set, run, roll and travel measurements.

Other topics include basic oxyacetylene welding where the processes, equipment, symbols, types of welds on light and heavy plates, brazing, silver soldering, flame cutting, piercing and hold cutting are discussed. This course explores basic arc welding including: Processes, fundamentals, symbols, beads, types of joints, reverse polarity, bare rod, coated rod, build-up and low-hydrogen electrodes.

Sheet Metal I

This course introduces safety, shop/trade mathematics, the principles of layout, the elements of blueprint reading and fabrication. This course also covers the various tools, fasteners, metals and sheet metal processes.

Sheet Metal II

This course introduces parallel line development, triangulation, radial line development and expands the student's knowledge of trade mathematics. This course also presents soldering and brazing, hangers and supports, insulation, gutters and downspouts, flashing and hoods and ventilators.

Sheet Metal III

This course introduces welding, brazing and cutting. The principles of air flow, equipment, fiber glass and PVC ducts, blueprint specifications and field measuring and fitting are also explored in this course.

Sheet Metal IV

This course explores shop production and organization, air balance, duct design fundamentals and duct standards. This course also covers carbon arc welding; bend allowances; louvers, dampers and access doors; rigging and hoisting; fume and exhaust systems design and the principles of refrigeration.

CONTINUING EDUCATION FOR HEALTH CARE

CEN 104 Healing and the Mind

½ Credit

This course enables the student to explore scientific research as well as ancient practices demonstrating the interconnectedness of healing and the mind. Different cultural viewpoints for accessing this often subtle, sometimes seemingly miraculous, influence are presented.

CEN 105 Basic Newborn Assessment

½ Credit

This course covers the assessment of all body systems and functions of the normal newborn. If students are nursery, OB, clinic or home health nurses or have an infant of their own, they may want to expand their newborn assessment skills.

CEN 106 Case Management

½ Credit

This course is a basic information course that explains case management in hospitals, insurance, home care and private companies. This course includes negotiating contracts, developing care plans, reports and dealing with conflicts. This is another alternative in nursing.

CEN 107 Camp Health Care

½ Credit

This course is open to RNs, LPNs, EMTs and Advanced Red Cross First Aid carriers. It presents health issues and health responsibilities for camp. Social service regulations, medications, protocols, first aid equipment, immunizations, communicable diseases, care of chronic health conditions and the role of the health person with camp staff are discussed.

CEN 110 Neurolinguistic Programming

½ Credit

This course presents a practical set of skills that enhances and expand a person's ability to build verbal and nonverbal rapport rapidly with others. Neurolinguistic programming can increase the effectiveness of healing interventions by developing a clear, individualized communication pattern with each patient allowing for a desired change to occur. This course also includes a learning process called "anchoring," which is a gentle and respectful method of change.

CEN 201 Ethics in Health Care

½ Credit

This course presents the ethical dilemmas that have become everyday issues in health care. Also presented is the effect that technology has had on such discussions as the "right to die" and "duty to die." Although there are no "answers" to ethical dilemmas, many insights are studied from a systematic examination of the issues.

CEN 203 Women's Health Care

½ Credit

This course presents basic information such as contraception, hormone therapy, pap smears, breast self-examination, colposcopy and sexually transmitted diseases. Additional topics may include dysfunctional uterine bleeding, abnormal uterine bleeding, the tests which diagnose these concerns and some current methods of treatment.

CEN 206 OB/GYN Emergencies

½ Credit

This course presents an introduction to common OB/GYN emergencies, assessment and emergency treatment. Topics include ectopic pregnancy, threatened abortion, toxic shock syndrome, abdominal pain, emergency labor and delivery and trauma.

CEN 208 Basic EKG Interpretation

1 Credit

This course presents the anatomy and physiology of the heart, conduction system, normal and abnormal stimuli of cardiac muscle, cardiac drugs and recognition of arrhythmias.

CEN 209 Spanish for Health Care Professionals

1 Credit

This course covers basic anatomy and medical terminology. It enables one to speak with patients and encourage needed information. This course is adapted to the student's needs.

CEN 210 Physical Assessment of the Adult

2-3 Credits

Participants learn how to obtain a complete health history which is integrated with a physical exam. The assessment skills of inspection, palpation, percussion and auscultation are practiced in the course. Proper use of equipment such as the otoscope, tuning fork, ophthalmoscope and reflex hammer are also covered.

CEN 212 Neurolinguistic Programming II

½ Credit

Prerequisite: CEN 110 or permission of instructor

This course teaches hands-on NLP tools to produce positive changes for yourself and others. Participants learn to read people's unconscious cues, resolve ambivalences and create feelings of self-confidence when and where they want them.

CEN 213 Spiritual Role in Health Care

½ Credit

This course explores the spiritual dimension of health care. Self-introspection and spirituality and one's relationships are also discussed.

CEN 216 Humor Therapy

½ Credit

This course explores the healing of humor on the body. Topics may include how humor can serve as a powerful therapeutic tool, minimize the trauma of hospitalization and provide for healthy stress release and balance for the caregiver. Effective use of humor in the workplace is also covered. Humor not only provides employees a relaxed environment but it can also facilitate the healing of patients and the building of "lighter" relationships with co-workers, patients and patients' families.

CEN 217 Phlebotomy

1 Credit

This course covers OSHA regulations; collection procedures and requirements for various laboratory tests; phlebotomy technique; problem solving; legal implications and phlebotomist/patient rights.

CEN 218 Better Charting and Legal Documentation

½ -1 Credit

This two-part course is designed to review the principles and legal aspects of documentation. This course discusses better charting deals with documentation from a nursing care perspective and examines what should be charted and how. Various charting systems (S.O.A.P., Block, Narrative, etc.) are considered, and students are encouraged to bring chart forms and charting samples for discussion. This course also explores the legal aspects of documentation focuses on specific legal issues in documentation and includes being a witness, consents, living wills and DNR orders.

CEN 220 Law Every Nurse Should Know

½ -2 Credits

In this seminar students learn the anatomy of a malpractice claim and the elements required for a lawsuit. Participants become acquainted with basic doctrines and principles of law, which apply to nurses, and how to avoid legal problems.

CEN 221 High Level Wellness

1 Credit

This course explores the positive and health-promoting dimensions of the wellness lifestyle. Students have an opportunity to assess their present lifestyle and design a new one incorporating the wellness principles. The course covers nutrition, exercises, stress management and personal assessment.

CEN 224 Massage Therapy and Healing Touch

1 Credit

Prerequisite: CEN 242

This course explores massage therapy and its importance in treating injuries, chronic pain and stress related conditions. Healing Touch and how it boosts the ability to heal are also discussed. This course teaches "hand-on" techniques to complete a full body massage along with integration of Healing Touch. Swedish massage techniques and basic foot reflexology, combined with a complete energy balance, are performed and experienced by each student. Guidelines for creating a nurturing, healing environment and the use of lotions, oils and aroma therapy are also covered.

CEN 225 Introduction to Home Health Nursing

½ -1 Credit

This course introduces home health nursing from the standpoint of services provided by for-profit and non-profit agencies, funding for home health care and community support services. The role of the nurse, the family, reimbursements and the future of home health care are emphasized. *This course should be followed with CEN 264 and CEN 243.*

CEN 226 Intravenous Therapy

1 Credit

This course covers basic venipuncture techniques, central lines, factors involved in vein selection, psychological implications, complications and nursing measures. *This course does not provide IV certification.*

CEN 227 Communication Skills

½ -1 Credit

Reacting and responding to the demands of the environment, feeling stress, frustration and apathy at times, takes a toll on self-worth and one's interaction with others. This course enables students to acquire essential skills in communication, conflict resolution, negotiation, team building, decision making and assertiveness to manage stress, gain self-worth and expand one's human potential to get needs met.

CEN 228 Solution Focused Counseling

½ Credit

This course explores how a problem or solution increase with attention. Students learn how to use the newest, brief counseling and interviewing techniques which research demonstrates focus a person toward resourceful resolution.

CEN 229 Wellness Counseling

1 Credit

This course presents tools to facilitate oneself and others in the movement toward a higher level of wellness including vitality and a joy of living. Students learn assessment tools, basic counseling skills, how to establish contacts and set goals for change, methods for evaluation and ongoing growth.

CEN 230 Trauma Assessment and Intervention

1 Credit

This course presents the steps for a systematic assessment and intervention in traumatic emergencies. Each step is covered in detail with handouts, slides, classroom discussion and hands on experience. *This course is not for BTLs Certification.*

CEN 231 Carpal Tunnel Syndrome

½ Credit

This course focuses on empowering people through education and self-care to help prevent and treat the occupational disease known as carpal tunnel syndrome. This course also covers topics including surgeries, pain, inability to work and loss of muscle functions.

CEN 232 Caring for the Caregiver

½ Credit

This course explores the daily stresses of nursing and provides methods to relieve stress and care for ourselves. It also examines a variety of methods to assist the patient in self-healing.

CEN 233 Organisms of Concern in the 1990's

½ Credit

This course specifically covers tuberculosis, multi-drug resistant organisms and viral hepatitis. The characteristics of the organisms, mode of transmission, precautions and recommended treatment are discussed. OSHA rules/regulations and survey process for health care providers especially related to tuberculosis and viral hepatitis are included.

CEN 235 Nutritional Therapy and Health

½ Credit

This course examines the nutritional alternatives to traditional medical therapies. The discussions focus on a more optimum level of health, using various nutritional techniques. Topics include food allergies and asthma, premenstrual syndrome, gastrointestinal disorders, blood sugar abnormalities, vitamins and minerals and the effect of drugs on nutritional status.

CEN 236 Dance Therapy and Healing

½ Credit

This workshop introduces the theories of Marian Chace/Group Development, Blanche Evan/Creative Movement and Mary Whitehouse/Authentic Movement. Dance therapy principles can be applied to all care-givers interactions in which professionals want to increase empathy and communication. *Students should come dressed in loose, comfortable clothing.*

CEN 237 Authentic Movement: Inner Pathway to Healing

2 Credits

This course is an in-depth study of authentic movement—a spontaneous movement form with a Jungian psychology base. The form involves the relationship between a mover and a witness. This course covers theory and practice of authentic movement principles in health care. *Students should come dressed in loose, comfortable clothing. A journal and art materials should be brought to class.*

CEN 239 Intravenous Certification

4½ Credits

This course covers venipuncture techniques, blood tubes, procedure for setting up and maintaining intravenous therapy, intravenous catheters, solutions, pumps, antibiotic therapy, and legal/ethical ramifications.

CEN 241 Healing Imagery: Body, Mind, Spirit

½ Credit

This course explores the ancient practices of Shaman healers as well as the clinical research on healing imagery. Students develop their own creative imagination for personal and professional growth. Students also learn effective techniques which accelerate healing and develop insight.

CEN 242 Therapeutic Touch

1 Credit

This course provides a historical overview of healing-through-touch. The art of healing touch is related to a variety of belief systems including the scientific method, holistic health, parapsychology and other healing modalities. Students learn to develop and use touch as a means of assessing a client's/patient's state of wellness and enhance wellness. Students are given specific instructions in developing touch sensitivity and practice the assessment and healing methods.

CEN 243 Teaching in Community/Home Health Nursing

½ Credit

Prerequisite: CEN 225 and 264 are recommended

This course presents teaching theories, assessment of client/family's learning needs; teaching modalities and practicum to exercise new skills. This course covers the new JACHO and case management requirements, discharge teaching and community resources.

CEN 244 Holistic Nursing Level I

1Credit

The conscious application of self-responsibility, caring, human development, stress, lifestyle, communication, problem solving, teaching/learning, leadership and change are topics covered in this course. This is approached through nurturing, preventive and generative nursing activities to help the clients help themselves move toward high-level wellness.

CEN 249 Journaling

1 Credit

The journal or diary is an effective tool for looking at one's own personal growth process, as well as helping patients/clients in their healing process. Journaling helps people to develop memory, imagination, feeling, intuition and many other creative aspects of themselves. Using the journal in health practices can accelerate the healing process for the patients/clients. They gain increased self-awareness and reflection and feedback on their path to wellness. This class teaches basic journaling skills, as well as 15 special techniques to use in the journal..

CEN 250 Home Health Nursing Skills Part I

½ Credit

This course is for nurses entering the home health field. It presents the skills/functions that are necessary for quality care in home health nursing, including medications, laboratory work, emergencies and common health problems seen in the home.

CEN 251 Music as a Therapy for Wellness

1 Credit

This course is a highly participatory one including music activities and discussions that lead toward the benefits of music therapy for self and clients. A study of the avenues of music experience, as well as awareness of music and sounds in our environment are included.

CEN 252 Menopause: Traditional and Natural Approaches

½-1 Credit

This course addresses the process of physical, emotional, mental and spiritual symptoms. Discussions focus on traditional hormone therapy as well as alternative therapies including nutrition, natural hormones, Chinese medicine, acupuncture, herbology and biofeedback. Health care risk before and after menopause also are addressed.

CEN 254 Holistic Nursing Level II

2 Credits

Prerequisite: CEN 244

Using basic theory from CEN 244, this course provides a more comprehensive study of modalities to strengthen the whole person in the process of facilitating healing and maintaining optimal health. The application of holistic nursing concepts and the body/mind responses are used as guides for each modality studied. The course also discusses the nursing process and the holistic therapeutic relationship.

CEN 255 Spanish for Health Care—Level II

1 Credit

Prerequisite: CEN 209

This language course is conversational. Verb tenses are reviewed along with medical terminology. Participants are given an opportunity to speak with native speakers one-on-one for increased proficiency.

CEN 256 Holistic Nursing Level III

2 Credits

Prerequisites: CEN 244, 254

This course incorporates the course work for the Holistic Nursing Certificate Program into the practical implementation of holistic nursing philosophy and skills in a clinical or community setting. It is recommended that students have completed at least half of the requirements for the certificate program before taking this course. Students identify their own projects, write a project proposal and present a final report to the class. This course assists students in developing leadership and teaching skills in the health care community.

CEN 257 ACLS (Advanced Cardiac Life Support)

2 Credits

Prerequisite: BCLS certification is required as well as EKG recognition

This course presents the required material for ACLS completion. It covers arrhythmias, medications, therapeutic modalities for life threatening arrhythmias, airway management and other treatment modalities used in cardiac and respiratory arrest. Each class includes case scenarios to give practical and hands on use of emergency equipment. This course is taught according to NEW ACLS standards.

CEN 258 Journaling the Spiritual Journey

1 Credit

Prerequisite: CEN 249

This course focuses on connecting with the spiritual part of people and providing tools for personal growth, as well as techniques to assist others, on the journey to spiritual wholeness. This course also explores how spiritual writing expands the consciousness and how journaling can help people who need direction in their lives.

CEN 260 Bereavement Counseling

½ Credit

This course presents current principles of bereavement counseling, including identification of the normal grieving process and appropriate nursing interventions. It covers the use of your feelings and experiences in assisting patients and/or families who are bereaved.

CEN 261 Pediatric Emergencies in Home Care

½ Credit

This course presents common pediatric emergencies that can occur in the home setting, focusing on prevention, evaluation and treatment.

CEN 262 Advanced Therapeutic Touch

1 Credit

This course is designed to assist those students who have an introductory knowledge of therapeutic touch to increase and enhance their skills in assessment including visualization, grounding, focusing, color, self-healing, meditation and biofeedback.

CEN 263 Self-Esteem and the Child

1 Credit

This course covers how self-esteem is a learned process. Steps (tools) that one can use starting in childhood and continuing through adulthood are discussed in this course. Articles and books are explored to assist educators, nurses, parents and grandparents.

CEN 264 Documentation Skills in Home Health Nursing

½ -1 Credit

Prerequisite: CEN 225 is recommended

This course is designed to assist nurses to develop problem lists, nursing care plans, document history and physical exams, write plan of treatment, work with diagnostic codes, develop visit parameters and follow Medicare and JACHO guidelines for determining eligibility and skilled services.

CEN 265 Personal Power: Gift of Self-Esteem

1 Credit

This course explores self-talk, self-appreciation, self-responsibility, belief and expectations and provides tools for increasing personal power. This course also covers the correlation between self-esteem and health—mentally and physically.

CEN 266 Physical Assessment in Home Health

1 Credit

This course teaches students how to obtain a complete health history which is integrated with a physical exam specific to the home setting. The assessment skills of inspection, palpation, percussion and auscultation are practiced in the course. Proper use of equipment such as the otoscope, tuning fork, ophthalmoscope and reflex hammer is included.

CEN 267 Living Without Limits

½ Credit

This course describes steps which can be taken to clarify goals, get support for challenges and act effectively to accomplish one's life's dreams. This course also explores the qualities of "optimal performers" and how to let go of distractions by understanding the importance of being true to oneself.

CEN 269 Healing Presence

1 Credit

This course explores the meaning of healing presence through the process of increased self-awareness and self-discovery. It also covers the development of skills for connecting on a higher level with oneself and others. The course focuses on experiencing the healing presence with oneself and the essence of the healing presence with others.

CEN 271 AIDS Update

½ Credit

This course covers the etiology, epidemiology and treatment modalities of Acquired Immune Deficiency Syndrome. The psychosocial issues affecting the individual with HIV/AIDS and issues concerning the caregiver are also covered.

CEN 274 Quality Assurance and Utilization Review in Home Health Care

½ Credit

This course covers the roles and responsibilities as well as the definitions and methods used in monitoring and evaluating for quality assurance and utilization review. Medicare coverage and reimbursement procedures are reviewed as well as common methods of data collection and understanding the medical record.

CEN 276 Creating Healthy Relationships

1 Credit

This course offers students an informational framework and the tools for building personal and professional relationships, which are vibrant and growthful. Relationship to self, others and the environment are addressed.

CEN 277 Addictive Disorders

½ Credit

This course defines the diagnostic criteria for several types of dependencies (alcohol, drugs, eating disorders, gambling, relationships) and identifies the continuum of services available for treatment. Several theories are discussed. The phases of recovery and the goals of treatment are described.

CEN 278 Hospice Nursing

½ Credit

This course introduces the philosophy and principles of hospice support for the terminally ill, their family and friends. It explores hospice intervention, which offers opportunities for comfort through symptom control, support to the patient's family and friends in decision making and coping with anticipatory grieving and death. This course also includes coverage of hospice in the home, as well as in-patient settings.

CEN 280 Pain Management

½ Credit

This course presents pain control strategies which have proven successful in the management of pain in hospice patients. These strategies may also be effective in the management of both acute and chronic pain in a wide variety of conditions associated with non-terminal as well as terminal illness. Pharmacologic and non-pharmacologic comfort promoting measures are presented. Management of drug and disease-related symptoms, including constipation, nausea/vomiting, dyspnea, confusion and sedation are discussed as well as barriers to excellence in pain management.

CEN 281 Home Health Nursing Skills Part II

½ Credit

This course includes an in-depth study of common illnesses, early discharge surgeries, open-wound care, I.V. therapy, case management and the supervision of home health aides in the home or assisted-living settings.

CEN 282 Legal Issues in Home Health Care

½ Credit

This course explores some of the special legal risks for home health care providers and risk management techniques. Student study the differences in home health care today as well as look at legal issues.

CEN 283 Psychoneuroimmunology

½ Credit

This course presents the role of neurotransmitters in the body-mind relationship in illness or wellness. The systems of belief patterns, behavioral addictions, conditioned responses, and health expenses are also explored and related to personal health.

CEN 285 Stress Management for Health Care Professionals

½ - 1 Credit

This course explores working with energy, confidence and enthusiasm by learning specific skills regarding the management of stressful situations or people. This experiential class is designed for all who are interested in a higher quality of life and want to reach their full potential. Students learn how to relax quickly, improve self-image, improve concentration to control worry.

CEN 287 Nurse Entrepreneur

½ Credit

This course teaches the skills necessary to start an independent practice. It includes self-assessment of professional skills, the business plan for marketing and finance and the actual design of the practice.

CEN 289 Career Alternatives Within Nursing

½ Credit

This one-day workshop explores numerous areas in which nurses work and how to pursue jobs in these areas.

CONTINUING EDUCATION REFRESHER NURSING

CER 200 Registered Nurse Refresher Course 8-12 Credits

Corequisite: CEN 210

This refresher course is designed for all RNs, regardless of time absent from nursing practice, to explore avenues of employment. A portion of clinical experience is held in the hospital to refresh and update basic nursing skills. There are also opportunities for experience in home health, occupational health, public health, long-term care, clinics, rehabilitation, day surgery, hospice and other settings (choice of two).

COOPERATIVE EDUCATION

COE 296 (or COM 115) The Job Search Process Cooperative Education Corequisite

1 Credit

Either of these courses provides the on-campus corequisite for students enrolled in Cooperative Education/Internship 297 courses. These courses are designed to maximize student learning through the Cooperative Education/Internship work experience. The corequisite requirement is designed to assist each student in developing job-oriented learning objectives and to prepare the student with skills essential for job acquisition, retention and promotional growth.

XXX 297 Cooperative Education/Internship 3 Credits

Prerequisite: Permission of Cooperative Education Coordinator

Corequisite: COE 296 (or COM 115)

This course is a credited program which provides work experience opportunities for students to gain practical work experience related to their educational program. All Co-op/Intern courses carry a course/program prefix to match the area of study and are numbered 297.

CRIMINAL JUSTICE

CRJ 110 Introduction to Criminal Justice 3 Credits

This course includes a study of the agencies and processes involved in the criminal justice system; the legislature, the police, the prosecutor, the public defender, the courts and corrections. It also includes an analysis of the roles and problems of the criminal justice system in a democratic society, with an emphasis upon inter-component relations and checks and balances.

CRJ 111 Substantive Criminal Law 3 Credits

Prerequisite: CRJ 110

This course teaches legal definitions of crime; purposes and functions of the law; historical foundations and the limits of the criminal law.

CRJ 112 Procedural Criminal Law 3 Credits

Prerequisite: CRJ 110

This course covers constitutional and procedural considerations affecting arrest, search and seizure and includes analysis of criminal cases from arrest through final appeal.

CRJ 116 Civil Liability 3 Credits

Prerequisite: CRJ 110

This course covers the origin and jurisdiction of civil action, procedure and responsibility addressing the liability of criminal justice practitioners.

CRJ 118 Report Writing 3 Credits

Prerequisite: CRJ 110

This course is designed to teach the fundamentals for preparing criminal justice reports, who uses them, what information must be included, how to organize it and how to write reports in a clear, concise language that will communicate the maximum amount of factual information. Special emphasis is placed on spelling, punctuation and paragraphs.

CRJ 125 Law Enforcement Operations 3 Credits

Prerequisite: CRJ 110

This course is an in-depth examination of the complexity and multi-dimensional aspects of the police role and career; police discretion; police values and culture in modern America. The role and functions of the police in occupational, social, political and organizational context are also discussed.

CRJ 126 Patrol Procedures 3 Credits

Prerequisite: CRJ 110

This course studies of the basic knowledge and skills required of a peace officer to safely and effectively accomplish the patrol function.

CRJ 135 Judicial Function

3 Credits

Prerequisite: CRJ 110

This course examines the criminal process i.e., prosecutors, defense attorneys, judges and the discretionary aspects of adjudication.

CRJ 140 Control and Supervision of Inmates

3 Credits

Prerequisite: CRJ 110, 135, 145

Legal considerations, philosophies, principles and techniques of effective supervision of inmates in local detention facilities are topics covered in this course. Emphasis is on application of non-violent control methods.

CRJ 141 Animal Cruelty Investigation

3 Credits

Prerequisite: CRJ 110

This course is designed to provide the officer investigating cruelty to animals with necessary tools to conduct complete and thorough investigations. The primary focus is on preliminary investigations, ethics, existing laws pertaining to animal cruelty, report writing and rules of evidence peculiar to animal cruelty cases.

CRJ 145 Correctional Process

3 Credits

Prerequisite: CRJ 110

This course covers the post-conviction corrections process; the development of a correctional philosophy, theory and practice; a description of institutional operation, programming and management; community-based corrections, probation and parole.

CRJ 146 Community-Based Corrections

3 Credits

Prerequisite: CRJ 110, 135, 145

This course is an analysis of community based correctional programs and procedures. Emphasis on environment and the relationship to public safety, rehabilitation and punishment.

CRJ 147 Institutional-Based Corrections

3 Credits

Prerequisite: CRJ 110

This course studies the correctional institution, including the role of correctional personnel relative to institutional programs.

CRJ 148 Juvenile Institutions

3 Credits

Prerequisite: CRJ 110

This course focuses on juvenile institutions, their purpose and function; differentiating between detention and institutional treatment.

CRJ 150 Introduction to Victims of Crime and Trauma

3 Credits

Prerequisite: CRJ 110

This course introduces students to the role the crime victim plays in the criminal justice system. The traditional response that a crime victim receives from the system is studied and the psychological, emotional and financial impact that these responses have on victimization are analyzed.

CRJ 151 Domestic Violence

3 Credits

Prerequisite: CRJ 110, 150 or permission of instructor

This course examines the role of women and the abuse of women in history, different theories about spouse abuse and research on the subject. The course also examines the treatment for both the victim and the perpetrator of domestic violence as well as children of violent homes. Colorado law pertaining to domestic violence, changes in society's attitude and actions toward domestic violence is covered as well.

CRJ 152 Sexual Assault

3 Credits

Prerequisite: CRJ 110, 150 or permission of instructor

This course examines sexual assault beginning with definitions and describing the degrees of sexual assault, i.e. penalties and realities of punishment. Myths, statistics, services, treatment and prevention are discussed. Both the rapist and the adolescent offender are profiled. The proactive approach is taken with regard to prevention.

CRJ 153 Violence Against Children

3 Credits

Prerequisite: CRJ 110, 150 or permission of instructor

This course includes an in-depth study of physical, sexual and emotional abuse and neglect of children. The course focuses on identification and treatment of abusive families and victims of abuse and on the response of the legal system, the community and human service agencies.

CRJ 154 Applications in Victim Assistance

3 Credits

Prerequisite: CRJ 110, 150, 225

This course is designed to bring the student closer to the realities of the role of victim advocate. Students develop written and verbal skills. There is intense application of intervention techniques. Role play and video review of role play is used. This course helps students determine the role within the victim assistance field which is the best match for his/her interests and abilities.

CRJ 190 Financial Investigations

3 Credits

This course introduces the current perspectives dominant in the field of financial investigations. Concepts of law and evidence; sources of information including financial institutions; business financial record keeping; and tracing funds, using a variety of methods and interviewing as they apply to detecting and resolving financial crimes, are discussed. Emphasis is placed on theoretical principles and applications of financial investigative techniques.

CRJ 210 Constitutional Law

3 Credits

Prerequisite: CRJ 110

This course studies the powers of government as they are allocated and defined by the United States Constitution; intensive analysis of United States Supreme Court decisions.

CRJ 211 Criminal Behavior

3 Credits

Prerequisite: CRJ 110, PSY 102 or permission of instructor

This course identifies prominent theories of societal reactions to crime and their application to specific crime problems. Examination of the question of crime causation from legal, social, political, psychological and theoretical perspectives, history and development of criminology are explored.

CRJ 214 Colorado Revised Statutes

3 Credits

Prerequisite: CRJ 110

This course is designed to provide the student with an understanding of the principles and concepts of the Colorado Criminal Code.

CRJ 215 Constitutional Rights of Inmates

3 Credits

Prerequisite: CRJ 110

This course is an overview of the justice system; pertaining to constitutional rights of inmates, including civil/criminal liabilities, legal services and disciplinary proceedings.

CRJ 216 Juvenile Law and Procedure

3 Credits

Prerequisite: CRJ 110

This course analyzes the socio-legal operation of the Juvenile Court, focusing on the substantive and due process rights of minors. Legal reasoning underlying the juvenile law as it operates at all levels of government is also discussed.

CRJ 217 Psychoactive Drugs—Use, Effects and Social Impact

3 Credits

This course examines drug usage from a psychological, medical, social and legal perspective. Psychoactive drugs are discussed in terms of their effects on brain function, psychological effects and effects on health/social functioning.

CRJ 218 Drug Investigative Strategies

3 Credits

Prerequisite: CRJ 217 or permission of instructor

This course examines both the procedural and administrative functions of a drug enforcement unit including case initiation, management of investigative resources, surveillance, undercover operations, management philosophies and personnel field training agents.

CRJ 219 Career Issues in Criminal Justice

3 Credits

Prerequisite: CRJ 110

This course introduces students to situations which they may encounter when applying for a position in the criminal justice field and during the first year on the job. Current issues relating to employee relations, recruitment, professionalism, policy, discipline, misconduct and stress are discussed.

CRJ 220 Human Relations and Social Conflict

3 Credits

Prerequisite: CRJ 110

This course highlights the environmental organizational and socio-psychological dimensions of social control. The study of individual attitudes, beliefs and behavior involved in role conflicts, community relations and conflict management in the social structure are covered.

CRJ 225 Crisis Intervention

3 Credits

Prerequisite: CRJ 110, 150 or permission of instructor

This course provides an understanding of crisis theories and examines the role of the interventionist.

CRJ 235 Delinquent Behavior

3 Credits

Prerequisite: CRJ 110

This course focuses on the adolescent who violates social and legal norms and the consequences for the individual and society. Students study the social and psychological factors influencing individual delinquent patterns.

CRJ 239 Managing Emergency Worker Stress

3 Credits

Prerequisite: CRJ 110 or permission of instructor

This course provides students with an understanding of trauma reaction and stress management for the first line responders, i.e. police officers, victim advocates, paramedics and firefighters. Practical application of coping skills and stress management for first line responders is discussed.

CRJ 240 Criminal Investigation

3 Credits

Prerequisite: CRJ 110

Criminal investigative methods and procedures are introduced and include preliminary through the follow up stages.

CRJ 245 Interview and Interrogation

3 Credits

Prerequisite: CRJ 110

This course studies the technical and legal approaches used in gathering desired information from victims, witnesses and suspects. The fundamental characteristics of questioning and the use of psychological influences are examined.

CRJ 246 Traffic Investigation and Management

3 Credits

Prerequisite: CRJ 110

This course is an overview of the skills and concepts necessary to complete an accurate investigation of a traffic collision. Traffic management concepts, selective traffic enforcement and safety issues are discussed.

CRJ 250 Penology

3 Credits

Prerequisite: CRJ 110, 145

This course is a historical and theoretical study of incarceration as punishment and deterrence and incapacitation.

CRJ 255 Organization and Management of Institutions

3 Credits

Prerequisite: CRJ 110

This course consists of the history of penal and correctional management organization of correctional institutions, management processes, leadership, control principles and implications for the future.

CRJ 256 Classification and Treatment of Offenders

3 Credits

Prerequisite: CRJ 110

This course covers the process through which the custodial, educational, vocational and treatment needs of the offender are determined.

CRJ 287 Adult Survivors of Childhood Molestation

3 Credits

Prerequisite: CRJ 110 or permission of instructor

This course provides the potential victim advocate with the latest treatment modalities for victims who are adult survivors of childhood molestation. It also focuses on the possible long term destruction mannerisms (Post Traumatic Stress Disorder) as well as the immediate trauma. How this type of crime can impact its victims' physical, mental and emotional attitudes, thereby affecting their personal and professional lives is explored.

CRJ 288 Grantwriting for Non-Profit Organizations

2 Credits

This course focuses on the specifics of grantwriting for non-profit organizations. It provides step by step details for an acceptable grant proposal. Additionally, the difference between government grants and private sector grants is explored. This course is designed for beginners, but those wishing to refresh their knowledge in this area are encouraged to participate.

DEVELOPMENTAL: EDUCATION**EDU 090 Seminar in Peer Tutoring**

1-3 Credits

This seminar prepares students to be effective tutors of their peers through course lecture, practical experience and small group sessions. The variable-credit, open-entry format allows students flexibility in scheduling and an opportunity to investigate certain features of teaching techniques.

EDU 092 Portfolio Development Workshop

1 Credit

This course is for students who are interested in using the portfolio process to apply for Credit for Prior Learning. Students learn to identify, assess, analyze and document college-level prior-learning gained through work and life experience and to prepare a portfolio for use in applying for credit for prior learning.

DEVELOPMENTAL: ENGLISH**ENG 031 Learning Unlimited English Review**

1-3 Credits

This course is intended for those who want to improve or review grammar and writing skills in order to pass standardized tests, prepare for course work or enhance their ability in everyday grammar, usage and writing. Student success is ensured by placement in materials at an appropriate reading level, elimination of having to work on those things already known, a limited amount of content covered in each lesson and mastery for each lesson before moving on to the next lesson. This course is totally individualized and self-paced. (Entry level skills: score of 0-2 on reading assessment.)

ENH 094 Sound and Spelling

1-3 Credits

This course is designed for students who need a refresher course in spelling and pronunciation. It emphasizes understanding dictionary pronunciation keys, spelling rules, vocabulary and spelling problems common to college level writing. It provides for oral and written approaches to improve spelling ability.

DEVELOPMENTAL: ENGLISH AS A SECOND LANGUAGE

ESL 011 Pronunciation

1 Credit

This course is intended for students of English as a Second Language who wish to improve their pronunciation of English. Students improve their ability to communicate orally and comprehend spoken English.

ESL 090 ESL Spelling/Vocabulary

3 Credits

This course is designed for students with no educational background in English. Basic spelling principles and fundamental vocabulary are taught with an emphasis on auditory perception to increase listening and speaking abilities.

ESL 091 ESL Communications

3 Credits

This course is for students with limited English speaking ability. The course emphasizes developing oral communication skills. Students practice listening/speaking for everyday survival as well as preparation for higher-level ESL courses.

ESL 092 ESL Reading

3 Credits

This course is usually offered at the basic, intermediate and advanced levels. Students progressively increase their vocabulary while learning to recognize thematic ideas and build skills toward comprehension of the sophisticated reading materials in a college classroom.

ESL 093 ESL Grammar

3 Credits

This course is usually offered at the basic, intermediate and advanced levels. Students progressively master the structures of English grammar while learning to integrate its use in reading, writing and conversation.

ESL 094 Writing

3 Credits

Usually offered at the basic, intermediate and advanced levels. Students begin with informal writing tasks and progress toward the more formal modes of academic writing. Emphasis begins with coherent sentences and builds through well-structured paragraphs to unified short essays

ESL 095 ESL Intensive (LEAP—Learn English and Progress)

5 Credits

This is an intensive English program which prepares International students and others to succeed in contemporary everyday interactions in personal, business and college environments. This program develops comprehensive skills in grammar, writing, reading, listening, conversation and pronunciation and consists of three levels including basic through advanced. Placement is determined during orientation prior to the first class.

ESL 096 ESL Communication for Business

3 Credits

This course is usually offered at the intermediate and advanced levels for ESL students who are not yet ready for college level courses but would like to improve their English through reading, writing and conversation with specific emphasis on business related material. Placement is determined during orientation prior to the first class.

ESL 098 TOEFL Preparation

3 Credits

This seminar course is offered for credit or non-credit (*without a grade*). Students study how to improve their scores on all sections of the TOEFL exam (Listening Comprehension, Structure and Written Expression, and Vocabulary and Reading Comprehension), using sample tests and preparation exercises.

DEVELOPMENTAL: GENERAL EDUCATION

GED 011 GED Preparation

1-3 Credits

This course is designed for students who needs to prepare for the GED tests: Writing Skills, Social Studies, Science, Literature and Mathematics. Diagnostic testing is included to determine skill level. Practice tests in GED materials and simulated GED testing are provided. A free pre-GED test is available.

DEVELOPMENTAL: MATHEMATICS

MAT 031 Learning Unlimited Math Review

1-3 Credits

This course offers a computer-managed, competency-based review of basic math skills. Electronically determined test results generate individualized prescriptions focused on areas identified for review. Completion of mastery tests verifies understanding of material. (*Entry level skills: score of 1 on the math assessment.*)

DEVELOPMENTAL: READING

REA 060 Foundations of Reading

3 Credits

This course assists students with vocabulary building, reading comprehension and study skills. (*Entry level skills: score of 2 on reading assessment.*)

REA 092 Skills for College Reading

1-3 Credits

This course is intended for students who want to improve reading skills to enhance success in his/her college program. This course covers literal and critical comprehension and effective textbook reading skills for technical and non-technical majors. (*Entry level skills: score of 3 on reading assessment.*)

REA 093 Skills in Test-Taking

1 Credit

This course improves test-taking skills and/or reduces the nervous tension experienced before or during a test. It involves stress reduction and the development of skills for taking multiple-choice, true-false and essay tests. Also, specialized test review is offered for the PLACE, ACT, SAT and GRE.

REA 094 Vocabulary Development

1-3 Credits

This course uses various approaches to develop vocabulary according to the student's needs, as well as focuses on the development of specialized vocabulary in the student's major area of personal or career interest, including business, English as a Second Language or college/professional emphasis. *(Entry level skills: score of 2 or more on reading assessment.)*

REA 096 Speed Reading and Reading Efficiency

1-3 Credits

This course is designed to meet the needs of students who want to develop reading power and reading speed. The course is built upon the fundamental aspects of increasing speed and comprehension in an organized manner. The course focuses on different reading rates, the purpose of reading, the myths about reading, the mechanics of reading, components of comprehension, vocabulary development, study methods and general enrichment. *(Entry level skills: score of 3 on reading assessment.)*

REA 097 Special Topics: Communications and Developmental Studies

1-3 Credits

This course offers students an opportunity to participate in a developmental studies program specific to unique needs.

STS 060 Learning Success Strategies

1-3 Credits

This course introduces students to the various study skills strategies necessary to succeed in a college setting. Emphasis is placed on applying skills to content area courses and/or other learning environments. *(Entry level skills: score of 3 on reading assessment.)*

DRAFTING: BLUEPRINT READING FOR ARCHITECTURAL CONSTRUCTION**BRC 125 Blueprint Reading for Residential Buildings**

3 Credits

This course covers the principles of interpreting blueprints and specifications common to residential buildings.

BRC 126 Blueprint Reading for Commercial Buildings

3 Credits

Prerequisite: BRC 125

This course covers the principles of interpreting blueprints and specifications common to commercial buildings.

BRC 127 Construction Materials

3 Credits

This course covers terminology, nomenclature, board footage, lumber, plywood, millwork, brick, masonry, concrete and steel through lectures and demonstrations.

BRC 128 Estimating Construction Costs

3 Credits

Prerequisite: BRC 125 or 126

This course covers construction mathematical review, specifications, excavation, take-off estimates, concrete foundations, footings, caissons and slab. Rough structure, full enclosure and computer-aided estimating may be included.

BRC 129 Building Codes and Inspection

3 Credits

Prerequisite: BRC 125 or 126

This course examines and evaluates construction work in progress. Work is compared and contrasted with recognized norms or standards to meet state and local building requirements.

DRAFTING FOR CIVIL/MAPPING**DRM 116 Introduction to Civil/Mapping**

6 Credits

Prerequisite: DRI 111

This course introduces various techniques of civil/topographic mapping utilizing a specified plat. Content includes working from field notes, bearing and distance, traverses, coordinates, plot maps, plot or site plans, contours and various civil, topographic and geological surface and sub-surface conventions.

DRM 200 Map Construction Techniques

9 Credits

Prerequisite: DRM 116

This course studies the following areas and materials as used in base map construction including land and geological symbols, pressure sensitive transfer type and pattern screens, independent and dependent survey, planimetric measurements, route curves, easements and spirals, survey plats, topographic sheets, aerial photos and survey notes.

DRM 205 Advanced Map Construction Techniques

6 Credits

Prerequisite: DRM 200

This course involves base and overlay map construction, the use of metes and bounds, written legal descriptions, coordinates, latitude and longitude and azimuth and tangent methods.

DRM 210 Civil Mapping Technical Project

6 or 9 Credits

Prerequisite: DRM 205 or permission of instructor

This course is a technical project including a student-written and faculty-approved proposal, scheduled progress reports and a finalized set of drawings and related details sufficient to determine the various aspects of the proposal. Proposals must be approved prior to course registration. The purpose is to allow students to expand knowledge in specific areas. Students must take 9 credit hours to complete the program.

DRAFTING FOR CONSTRUCTION**DRC 116 Architectural Drafting—Frame Construction**

6 Credits

Prerequisite: DRI 111

This course utilizes a specified floor plan emphasizing wood construction. Various plans and details are drawn such as wall section, cross section, stair section, elevations, fireplaces, foundation plans and sections, various schedules, dimensioning methods, window and door details and perspectives.

DRC 207 Structural Design and Drafting

6 Credits

Prerequisite: DRI 204

This course introduces the selection of structural steel, wood and concrete used in building construction and it references portions of the AISC, CRSI and selected wood design manuals and building codes. Types of structure details, as required on plans, are discussed and drawn.

DRC 208 Practical Applications of Construction Drafting

9 Credits

Prerequisite: DRC 207

This course consists of a drafting and design project for a commercial structure consisting of floor plans, elevations, sections and details, complete with dimensions and notes. Approval of this project by the instructor is required and is discussed at the first regularly scheduled class meeting. Extensive use of reference material is required.

DRC 210 Architectural Technical Project

3 or 6 Credits

Prerequisite: Permission of instructor

This is a technical project including a student-written and faculty-approved proposal, scheduled progress reports and a finalized set of drawings (plans, elevations and details) sufficient to determine the various aspects of the proposal. Proposals must be approved prior to course registration. The purpose is to allow students to expand knowledge in DRI 201 and DRC 208. This course is in addition to the required program credit hours.

DRAFTING FOR INDUSTRY**DRI 105 Introduction to Drafting**

6 Credits

This is an introductory course for all drafting students—drafting majors and non-majors. This course satisfies basic drafting requirements for programs such as petroleum and passive solar and serves as an exploratory course for non-occupational students. Lettering, linework, reproduction methods and geometric constructions; orthographic projection and sketching; isometric sketching; and orthographic and isometric drafting practices are introduced.

DRI 106 Basic Descriptive Geometry

3 Credits

Prerequisite: DRI 105

This course covers problem areas including line problems; true length, point view, bearing, slope and azimuth; plane problems; edge view, dihedral angle, true size and shape of any plane, true angle between two lines, true length of a line by the principle line method; shortest distances between parallel and nonparallel lines, lines and planes and intersecting lines and planes.

DRI 107 Section and Dimensioning Practices

6 Credits

Prerequisite: DRI 106

This course introduces the principles of sections, conventions, basic dimensioning practices and manufacturing methods. Cumulative, aligned and coordinate, decimal, unidirectional dimension systems are used along with threaded fasteners on single part cast and machined drawings. Precision dimensioning symbols are demonstrated. An introduction to ink drawing is included.

DRI 109 Intersections and Developments

3 Credits

Prerequisite: DRI 107

This course introduces the principles and concepts of solutions to problems involving lines of intersections and flat developments of flat and curved surfaces whether sheet metal or heavy plate materials. Right and oblique prismatic, cylindrical, conical and transition surfaces are studied.

DRI 111 Introduction to Computer-Aided Drafting - AUTOCAD

6 Credits

Prerequisite: DRI 105, 106, 107 and 109 or equivalent

This course is an introduction to Computer-Aided Drafting (CAD). The student are introduced to the CAD system configuration and general operating concepts and will be given extended hands-on experience in utilizing the various system commands for the creation of text and graphic symbols displayed in the composition of completed drawings. Advanced, more complex applications are integrated into subsequent courses.

DRI 115 Perspective Drawing

3 Credits

Prerequisite: DRI 105

This course introduces two-point perspective drawing techniques and presentation charts, diagrams and drawings.

DRI 116 Mechanical Assembly and Detail Projects

6 Credits

Prerequisites: DRI 111

This course explores the concept of multiple part mechanical assembly and detail drawings. Cast, machined, welded and purchased parts and operating mechanisms may be included. Part callouts, material lists, drawing organization and appropriate dimension systems such as precision and/or metric applications are also discussed.

DRI 151 Introduction AUTOCAD Seminar

1 Credit

Prerequisite: DRI 105 and 107 or equivalent or permission of the instructor

This seminar offers individuals, businesses and the industrial community an opportunity for an introductory or exploratory short course of current micro CAD systems and procedures. This course is offered each semester. Special seminars can be run for any company, group or combination of individuals with an enrollment of 15 or more. *This seminar does not count toward certificate or degree requirements.*

DRI 161 Intermediate AUTOCAD Seminar

1 Credit

Prerequisite: DRI 151 or permission of the instructor

This seminar offers individuals, businesses and the industrial community an opportunity for an intermediate short course of current micro CAD systems and procedures. This course is offered each semester. Special seminars can be scheduled for any company, group or combination of individuals with an enrollment of 15 or more. *This seminar does not count toward certificate or degree requirements.*

DRI 171 Advanced AUTOCAD Seminar

1 Credit

Prerequisite: DRI 161 or permission of the instructor

This seminar offers individuals, businesses and the industrial community an opportunity for an advanced short course of current micro CAD systems and procedures. This course is offered each semester. Special seminars can be run for any company, group or combination of individuals with an enrollment of 15 or more. *This seminar does not count toward certificate or degree requirements.*

DRI 201 Architectural-Structural Plans

6 Credits

Prerequisites: DRI 116 or DRC 116

This course requires the drawing of a small industrial/commercial building utilizing masonry, concrete and steel plans and details showing architectural and structural elements. The use of the AISC Manual of Steel Construction, Smoley's Tables and Architectural Graphics Standards are covered.

DRI 204 Industrial Plant Development

9 Credits

Prerequisite: DRI 201

This course introduces the drawing of preliminary plans for an industrial plant facility utilizing process flow diagrams and mechanical equipment preliminary and general arrangement drawings, plot and site plans. This course serves a dual process and may be taken twice with a different emphasis each time.

Drafting for Industry

In this course, such topics as major equipment general arrangement drawings for exterior sites and/or interior building plans and equipment relationships, related flow diagrams, plot plans, planning process, industrial piping and/or hydraulic, pneumatic or electrical applications may be discussed.

Drafting for Construction/Architecture

In this course, such topics as building planning, construction considerations, plot or site plans, floor plans, elevations, sections, HVAC, plumbing, electrical and general equipment relationships may be discussed.

DRI 207 Large Mechanical Equipment

9 Credits

Prerequisite: DRI 204

This course introduces students to the drafting and development of large mechanical assemblies, their subassemblies and details pertinent to their manufacture and installation into new or existing plant facilities. Types of assemblies may include — but are not limited to — rotary dryers, dust collectors, hoppers, bins, separators and similar kinds of equipment. *The AISC Manual of Steel Construction and Smoley's Tables* will be used.

DRI 208 Material Handling and Conveying

6 Credits

Prerequisite: DRI 207

This course introduces material handling methods, systems, equipment and building factors used in conveying bulk material or packaged goods. Development of plans, details and drive components for systems such as screw, belt, roll conveyors or transfer systems, bucket elevators, etc. are included.

DRI 210 Mechanical Technical Project

3 or 6 Credits

Prerequisite: Permission of instructor

This is a technical project that includes a student-written and faculty-approved proposal, scheduled progress reports and a finalized set of drawings (assemblies, subassemblies, pertinent details, material lists, etc.) sufficient to determine the various aspects of the proposal. Proposals must be approved prior to course registration. The purpose is to allow students to expand knowledge in DRI 207 and 208. This course is in addition to the required program credit hours.

EARLY CHILDHOOD EDUCATION

ECE 101 Introduction to the Early Childhood Profession

3 Credits

This course introduces the early childhood profession. Topics include the history of early childhood care and education, professionalism, curriculum, program management, health and safety, an overview of child development, early childhood care and education models and current issues. This overview covers prenatal through age eight.

ECE 102 Early Childhood Profession Lab Experience

3 Credits

Prerequisite: Pass FBI background check; health screening including TB tine and HIB tests

Corequisite: ECE 101

This course develops skills for observing and recording children's development and behavior. Moreover, students examine and practice appropriate methods for interacting with, guiding, caring for and teaching young children. *If working in a licensed center, students must meet state licensing requirements.*

ECE 103 Guidance of Children

3 Credits

Students explore the theories and techniques for understanding and guiding children's behavior. The components of a guidance system are examined including the child, the family, other caregivers and the physical environment.

ECE 111 Infant and Toddler Theory and Practices

3 Credits

Students explore theories, applications and issues such as staff/family interaction, pertinent to infants and toddlers in the areas of social, emotional, language, cognitive and physical development. These concepts are related to the individual's developmental progression, including prenatal. Students also examine the needs of children in group and family settings, including health, safety and nutrition issues and state requirements for licensed infant/toddler homes and centers.

ECE 112 Care and Nurturing of Infants/Toddlers Lab

3 Credits

Prerequisite: Pass FBI background check; health screening, including TB tine and HIB tests

Corequisite: ECE 111

This course is a supervised lab experience working with infants and toddlers in either a college lab school or an approved licensed setting. Priority is focused on the development of essential observation skills; initial implementation and evaluation of developmentally appropriate practice with infants and toddlers; and the acquisition of skills necessary to guide and facilitate the development of children of varying social, cultural and economic backgrounds. Students are required to participate in seminars. *If working in a licensed center, students must meet state licensing requirements.*

ECE 115 Creativity and the Young Child

3 Credits

This course emphasizes strategies to develop, implement and evaluate activities to support a curriculum in an environment that encourages and supports creative self expression and problem-solving in children. Developmentally appropriate practices as they relates to music, movement, art, drama, literature, play and other avenues are integrated.

ECE 116 Supporting Children's Language and Cognitive Development

3 Credits

Prerequisites: ECE 238 or PSY 238 preferred; ECE 227

This course examines theories of cognitive and language development as a framework for conceptualizing the way young children acquire thinking skills. Students observe, plan, facilitate and evaluate developmentally appropriate group and individual activities in the areas of language, science and math, as well as problem-solving and logical thinking. The value of play is also emphasized.

ECE 117 First Start: Children with Disabilities

3 Credits

Students explore child care services for infants, toddlers and young children with disabilities and chronic conditions. This course focuses on strategies, activities and adaptations that assist students with the inclusion of children with disabilities and chronic conditions in child care programs. Health and legal experts, parents and children with disabilities and chronic conditions are consulted in order to present accurate and useful information.

ECE 118 Supporting Children's Emotional and Social Development

3 Credits

Prerequisites: ECE 238 or PSY 238 preferred; ECE 227

Students examine theories of social and emotional development as a framework for conceptualizing the way young children acquire social/emotional skills. Students observe, plan, facilitate and evaluate developmentally appropriate group and individual activities in the areas of interpersonal skills and self concept. The effects of play and families or origin on a child's emotional/social well being are emphasized.

ECE 205 Nutrition and the Young Child

3 Credits

This course provides parents and teachers with information about nutrition and the effects of sound nutrition on the optimal growth and development of young children. In addition, students plan meals and snacks appropriate to the needs of the young child. Developmentally appropriate activities for the exploration of nutrition education and cooking are included.

ECE 216 Administration: Human Relations for the Early Childhood Profession

3 Credits

This course focuses on the human relations component of an early childhood professional's responsibilities. The course covers director/staff relationships, staff development, leadership strategies, parent/professional partnerships and community interaction.

ECE 226 Administration of Early Childhood Care and Education Programs

3 Credits

This course examines and interprets Colorado's minimal licensing requirements, as well as optimal standards, pertaining to the operation of programs for young children. The course focuses on establishing a new center, administrative functions and advocacy. *It is suggested that students take this class at the end of their ECE course of study.*

ECE 227 Methods/Techniques: Curriculum Development

3 Credits

Prerequisite: ECE 238 or PSY 238 is preferred

This course includes the foundation of curriculum development. It addresses the overall and specific processes of planning appropriate learning environments, materials and experiences that meet the developmental needs of individuals or groups of children from birth through age eight.

ECE 238 Child Development

4 Credits

Prerequisite: ENG 121, ASSET written score of at least 43 and reading score of at least 41, or permission of instructor

This course explores the growth and development of the child from conception through the elementary school years. Physical, cognitive, emotional, psychosocial and environmental factors are emphasized. The concept of the whole child and how adults can provide a supportive environment for children is also discussed. Students construct a case study of a child through guided independent observation exercises.

ECE 287 The Exceptional Child in the Integrated Setting

3 Credits

Prerequisite: ECE 238

This course explores developmental progression, activities, techniques and learning strategies to be used within the integrated environment. Students study accommodations and adaptations for the unique and varied needs of children from birth through elementary school. Students also examine a wide range of exceptionalities.

ECE 291 Special Topics: Early Childhood Education

½ -3 Credits

This course is designed for flexible utilization, covers specific topics and current issues in early childhood education. This course is offered as needed for credit appropriate to the topic and each offering includes a description of the topic(s).

ECE 295 Childhood Education Professional Issues

3 Credits

Prerequisite: ECE 238 in addition to 20 credit hours in ECE coursework; ASSET written score of at least 43 and reading score of at least 41, or permission of instructor

This course provides a discussion of the commitment and responsibility involved in being an early childhood professional. The course discusses current practices, early childhood issues/advocacy and the roles/responsibilities of the early childhood professional.

ECONOMICS**ECO 118 Labor Relations**

3 Credits

This course is an in-depth analysis of labor economics, collective bargaining, labor laws and the role of government in labor relations.

ECO 119 Applied Economics

1-4 Credits

This course emphasizes basic economics that relate to the role of the small business person and the wage earner.

ECO 175 Government and the U.S. Economy

3 Credits

This course deals with development of government's role in the national economy.

ECO 201 Principles of Macroeconomics

3 Credits

This course studies the American economy, stressing the inter-relationship among the household, business and government sectors. Students explore saving and investment decisions, unemployment, inflation, national income accounting, taxing and spending policies, the limits of the market and government, public choice theory, the Federal Reserve System, money and banking and international trade.

ECO 202 Principles of Microeconomics

3 Credits

This course studies the firm in depth, the nature of cost and how these relate to the economy as a whole. It analyzes economic models of the consumer perfect competition, monopoly, oligopoly and monopolistic competition. Students also explore economic issues including market power, population growth, positive and negative externalities, income distribution, poverty and welfare, discrimination and international economic interdependence.

**ELECTRICITY—INDUSTRIAL/
COMMERCIAL**

(See Construction Technology.)

ELECTRONIC DIGITAL/ COMPUTER TECHNOLOGY

EDT 110 Direct Current Circuits

7 Credits

This course is designed to give students a solid foundation in the theory and measurement of direct current (DC) circuits.

EDT 120 Alternating Current Circuits

7 Credits

Prerequisite: EDT 110 or permission of instructor

This course is designed to give students a solid foundation in the theory and measurement of alternating (AC) circuits.

EDT 130 Digital Logic Devices of Electronics

7 Credits

Prerequisite: EDT 120 or permission of instructor

This course introduces digital circuits applicable to computers and instrumentation. Codes, logic gates, memory devices, counters, shift registers and Boolean algebra are also covered. Basic troubleshooting techniques are included. Emphasis is on electronic applications.

EDT 140 Linear Circuits

7 Credits

Prerequisite: EDT 130 or permission of instructor

This course deals with operational amplifiers and their use as voltage followers, inverting and noninverting amplifiers, summing amplifiers, integrators and differentiators and applications of each. Bridge circuits used in sensing and measuring equipment and electronic instruments are included. Analog to digital conversion techniques and equipment as related to digital control of an analog system are also covered. Basic troubleshooting techniques are included. Emphasis is on electronic applications.

EDT 210 Computer Hardware

7 Credits

Corequisites: EDT 220

This course prepares students for certification tests used by the Computing Technology Industry Association Part 1. *Red Rocks Community College has no control over changes made by this agency to its A+ Certification Program.*

EDT 216 Microprocessor Programming Part A

2 Credits

Corequisite: EDT 110

This course introduces the use of computers, and is designed for electronics students. An overview of programming and operating systems is presented.

EDT 217 Microprocessor Programming Part B

2 Credits

Prerequisite: EDT 216 or permission of instructor

Corequisite: EDT 130

This course is a continuation of EDT 216.

EDT 220 Computer Troubleshooting and Support

7 Credits

Corequisite: EDT 210

This course prepares students for certification tests used by the Computing Technology Industry Association Part 2. *Red Rocks Community College has no control over changes made by this agency to its A+ Certification Program.*

EDT 230 Microprocessor In Networks Part 1

7 Credits

Corequisite: EDT 240

This course provides a thorough understanding of the OSI networking model and its implementation. Students use an assembler to write their own multi-layer network. This is part 1 of a 2-part course. A strong computer background is recommended prior to taking this course. *Red Rocks Community College has no control over changes made by this agency to its Certification Program.*

EDT 240 Microprocessor In Networks Part 2

7 Credits

Corequisite: EDT 230

This course provides a thorough understanding of the OSI networking model and its implementation. Students use an assembler to write their own multi-layer network. This is part 2 of a 2-part course. A strong computer background is recommended to taking this course. *Red Rocks Community College has no control over changes made by this agency to its Certification Program.*

EDT 260 NOVELL Certified CNE & Master CNE Part 1

7 Credits

Prerequisite: EDT-220 or permission of department chair

This course prepares students for Certified Network Engineering tests used by NOVELL Inc., Part 1. *Red Rocks Community College has no control over changes made by NOVELL to its CNE Program.*

EDT 270 NOVELL Certified CNE & Master CNE Part 2

7 Credits

Prerequisite: permission of department chair

This course prepares students for Certified Network Engineering tests used by NOVELL Inc., Part 2. *Red Rocks Community College has no control over changes made by NOVELL to its CNE Program.*

EDT 280 NOVELL Certified CNE & Master CNE Part 3

7 Credits

Prerequisite: EDT 270 or permission of department chair

This course prepares students for Certified Network Engineering tests used by NOVELL Inc., Part 3. *Red Rocks Community College has no control over changes made by NOVELL to its CNE Program.*

EDT 285 NOVELL Certified CNE & Master CNE Part 4

7 Credits

Prerequisite: EDT 270 or permission of department chair

This course prepares students for the Certified Network Engineering tests used by NOVELL Inc., Part 4. *Red Rocks Community College has no control over changes made by NOVELL to its CNE Program.*

EMERGENCY MANAGEMENT AND PLANNING

EMP 101 Introduction to Emergency Management

3 Credits

This course presents a broad overview of an emergency management system and the importance of an integrated approach to managing emergencies. Participants formulate the elements of an integrated teamwork system and devise specific actions for improving their own contributions to local emergency management teams. The course is for all disciplines that work together in planning for or responding to emergencies.

EMP 105 Emergency Planning

3 Credits

This course provides the skills and knowledge needed for hazard mitigation planning and implementation. Students formulate a rationale for mitigation of natural hazard vulnerability; assess the applicability of proposed mitigation strategies; develop a hazard mitigation plan using the process, format and content. Students also have the opportunity to diagnose the problems of a hypothetical hazard team, and propose changes to improve its operation and effectiveness. In addition, students are given a description of a region-unique hazard, in which they assess vulnerability, identify existing hazard mitigation systems, recommend mitigation activities, estimate cost, and develop a strategy for implementation of mitigation measures using HMGP funds.

EMP 106 Exercise Design

1½ Credits

Prerequisites: EMP 101, 105 or permission of instructor
This course provides knowledge and develops skills that enable students to train a staff and to conduct an exercise that tests a community's plan and its operational response capability.

EMP 107 Computer Systems Information

3 Credits

This course provides students with knowledge and skills to operate computer programs designed to enhance planning and information to control and mitigate disasters and gather needed information to safely and effectively make strategic decisions.

EMP 108 Mass Casualty

1 Credit

This course provides students with an understanding of the function, goals and operation of mock exercises and pre-planning. Hazards and the cause of these hazards and methods to correct them are discussed. Students study the effects from hazards to life and property.

EMP 109 Community Emergency Response and Incident Command

3 Credits

Prerequisites: EMP 101, 105 or permission of instructor
This course explores the dynamics of managing major emergency incidents. The National Incident Command System utilized in the instruction. Major incidents where large life, property, or economic losses are possible are studied. Actual incidents are discussed and analyzed. This course recognizes that learning from the experience of others in handling major emergencies is required in the preplanning of emergencies in our own communities.

EMP 110 Exercise Evaluation

1½ Credits

This course develops knowledge and skills that enable students to manage exercise evaluation activities before, during and after an emergency management exercise.

EMP 200 Hazard Mitigation Planning

3 Credits

This course gives students a good working knowledge of the standards, regulations, and processes of planning and working in group activities. This course also helps students develop planning programs for hazard mitigation which includes exercises in the development of plans for mitigation of hazards.

EMP 240 Leadership and Influence

1 Credit

This course enables students to lead and influence others in the demanding setting of emergency management by increasing their range of skills in a variety of interpersonal areas including conflict management, use of power, and group dynamics, as well as leadership and influence.

EMP 241 Decision Making and Problem Solving

1 Credit

This course enables students to clearly identify a problem and its cause in order to determine the appropriate type of decision making style. Using a suggested process of problem solving, participants are able to apply creative solutions to both emergency and non-emergency situations.

EMP 242 Effective Communications

1 Credit

This course is designed to sharpen the presentation and media skills of emergency management officials when giving and receiving information in emergency management contexts. The course addresses not only public speaking, but also other areas of communication, such as one-on-one interactions, small group discussions, written communication, listening skills and dissemination of public information through the media.

EMP 244 Developing Volunteer Resources

1 Credit

This course is designed to improve participants' ability to deal with a broad range of issues in the management of volunteers. Issues covered include identification of tasks provided by organized groups which require volunteer services, skill definition and specification of qualifications, publicity and recruitment, skill development and maintenance, and motivation strategy that promotes continued involvement and quality performance.

EMP 246 Capstone Seminar

½ Credit

The PDS Capstone Seminar is for emergency management personnel who have completed all field Professional Development Series courses. This seminar builds on the concepts offered in other courses and introduces other topics of interest to the career emergency management professional. Topics include liability issues in emergency management, media considerations, FEMA perspectives, stress management and critical incident stress debriefing, human behavior in disasters, team building, motivation and community awareness.

EMP 280 Public Policy

1 Credit

This course heightens awareness of public policy issues inherent in emergency management. Discussions and exercises cover public policy analysis, executive roles, hazard evaluation, establishing public policy and media relations.

EMP 291 Public Information

3 Credits

This course provides students an opportunity to practice and expand skills. It is a highly interactive course that includes workshops on writing, public speaking, media interviews, and awareness campaign development. This course also discusses media relations and public information planning.

EMP 292 Radiological Fundamentals (FCRRT)

2 Credits

This course provides local radiological response team members and other students with information on radiation protection, radiation detection instruments, radiological monitoring techniques, radiological hazards and protective actions, team building, and basic procedures to support planning for emergency/recovery activities in the event of a radiological incident.

EMP 297 Cooperative Education (Internship)

1-6 credits

This course must be arranged through the office of Cooperative Education and with approval of your Advisor. This Internship allows students to gain experience and knowledge from on-the-job training. *Positions are non-paid.*

EMERGENCY MEDICAL SERVICES**EMS 227 Emergency Medical Technician - Basic**

10 Credits

This course is designed in cooperation with the St. Anthony Hospital EMS department to train students to become certified Emergency Medical Technicians - Basic level. This course teaches students how to take vital signs of patients, perform basic life support (CPR), splinting and bandaging, prehospital care and treatment of trauma, illness, burns and care during transport to a hospital. This course meets all DOT Standards and upon successful completion students may take the Colorado State Department of Health, Emergency Medical Technician - Basic Certification exam.

EMS 237 Paramedic Technician*

23 Credits

This course is presented by St. Anthony Hospital Institute of Emergency Medical Services and teaches anatomy and physiology, roles and responsibilities, EMS systems, medical/legal considerations and EMS communications. The course also explores rescue, major incident response, stress management, medical terminology, general patient assessment, airway and ventilation, pathophysiology of shock, general pharmacology, trauma and burns. Management of respiratory problems, acute abdomen, genitourinary, reproductive system, anaphylaxis, toxicology, alcoholism and drug overdose and abuse, infectious diseases, environmental emergencies, geriatrics, pediatrics, OB/Gyn/neonatal problems and behavioral emergencies are also covered in detail.

** Completion of course work at Red Rocks Community College does not guarantee acceptance into the St. Anthony Hospital Paramedic Program.*

ENERGY TECHNOLOGIES**ENT 101 Introduction to Energy Technologies**

3 Credits

This course introduces the energy technologies in use today and those that are in the research stage as possible alternatives. Among the technologies presented are active solar heating, passive solar heating, wind energy systems, biomass, photovoltaics, co-generation, low and high head hydro, hydrogen, geothermal, power towers and energy storage systems.

ENT 120 Small Scale Wind Energy Systems

3 Credits

Prerequisites: ENT 101; EIC 118

This course gives students an understanding of the design and operation of small wind energy systems. This course also explores the state-of-the-art hardware and its applications for residential use. This course includes information on electrical circuits and components, power regulation, storage of electrical energy and methods of application. This enables students to understand the design features of small wind energy systems and allows him/her to design a basic residential system.

ENT 121 Small Scale Photovoltaic Systems

3 Credits

Prerequisites: ENT 101; EIC 118

This course gives students an understanding of the design and operation of photovoltaic devices and systems. This course explores the state-of-the-art hardware and its applications for residential use. This course includes information on electrical circuits and components, power regulation, storage of electrical energy and methods of application. This enables students to understand the design features of photovoltaic systems and allow them to design a basic residential system.

ENT 125 Basic Solar Design and Layout

3 Credits

Prerequisite: ENT 101

This course presents students with a practical design approach to solar energy systems and collector piping and ducting layouts as they apply to buildings. This course also explores construction techniques for new and retrofit applications.

ENT 126 Solar Collectors

3 Credits

Prerequisite: ENT 101

This course introduces the principles of design and operation of solar panel arrays, material analysis and construction features of flat plate collectors, mounting techniques and construction of a basic air and liquid collector array. It also covers distribution from collectors to storage and building, mechanical and plumbing codes as they apply to the solar industry.

ENT 127 Solar Systems Estimating and Marketing

4 Credits

Prerequisites: ENT 101, 125, 126

This course covers cost estimating for active solar systems and marketing techniques for sales of solar systems.

ENT 132 Basic Solar Controls

4 Credits

This course familiarizes students with the controls in general use today for solar domestic hot water systems. Numerous controller brands are worked with in order to understand the various operating characteristics. Add-on options, such as freeze protection and over-temperature protection and various methods of their implementation are discussed. Troubleshooting on a systems level and preinstallation checkout of various controllers are covered.

ENT 135 Conventional and Nonconventional Electric Power Sources

3 Credits

Prerequisite: ENT 101

This course deals with the conventional techniques and resources that are in common use today by electric utilities to produce electrical power. The nonconventional methods of producing commercial amounts of electrical power and those that appear to show the greatest potential for commercial development are also discussed. Environmental considerations of both conventional and nonconventional electrical generation methods are examined.

ENT 141 Passive Solar Systems I

3 Credits

Prerequisite: ENT 101

This course presents a state-of-the-art study on the design and installation techniques of passive/natural solar energy systems.

ENT 145 Passive Solar Retrofit

3 Credits

Prerequisites: ENT 101, 141

This course explores the principles and primary features behind a wide range of passive solar options for existing homes. The course also provides instruction concerning the site survey and energy conservation measures prior to installing retrofit design and construction details on various passive retrofit projects. Analysis of performance of each type of retrofit are also taught.

ENT 153 Renewable Energy Construction

4 Credits

This course introduces solar construction techniques, terminology and construction materials in detail. Moisture and air quality in tight construction are also covered, as well as an overview of the building shell and interior walls.

ENT 160 The Energy-Efficient Intelligent Building

3 Credits

Prerequisite: ENT 101

This course introduces energy efficient designs and appliances that can be incorporated into a modern residence. Natural and artificial lighting and the concept of the intelligent building are also addressed.

ENT 162 Indoor Air Quality

3 Credits

Prerequisite: ENT 101

This course enables students to understand the sources of indoor air pollutants and their associated health effects. Methods of detecting and controlling indoor air problems and preventative measures are discussed.

ENT 165 Residential Energy Audits and Conservation

3 Credits

Prerequisite: ENT 101

This course deals with identifying energy losses within a residence and recommending how such losses can be minimized. The construction methods and mechanical equipment within the building are of prime consideration. Conservation measures and practices are stressed. Various home energy audits are also discussed and conducted. An energy audit report is prepared and presented to the homeowner.

ENT 220 Large Scale Wind Energy Systems

3 Credits

Prerequisites: CIS 115; EIC 118; ENT 101, 120 and PHY 105

This course gives students an understanding of the design and operation of large wind energy systems. This course also explores the state-of-the-art hardware and its applications for commercial use as well as information on wind farms and how they are providing power to electrical utilities.

ENT 221 Large Scale Photovoltaic Systems

3 Credits

Prerequisites: CIS 115; ENT 101, 121; EIC 118 and PHY 105

This course gives students an understanding of the design and operation of large photovoltaic systems. This course explores the state-of-the-art hardware and its applications for commercial use as well as provides information on large photovoltaics arrays and how they are providing power to electrical utilities.

ENT 225 Solar Domestic Hot Water Systems

3 Credits

Prerequisites: ENT 101; PLU 107

This course provides a working knowledge of sizing, installation, maintenance of solar domestic hot water systems, residential applications, components, parts and cost efficiency analysis.

ENT 226 Solar Panel Installation

4 Credits

Prerequisites: ENT 101, 126; PLU 100

This course presents the installation of all types of panels on all types of roofs. Vertical wall mounting techniques are also covered.

ENT 228 Solar System Troubleshooting

3 Credits

Prerequisites: ENT 126, 132, 225 or permission of instructor
This course concentrates on the details of construction of solar system components, component reliability, system reliability and component/system preventative maintenance and troubleshooting. Solar system components are available for complete disassembly and inspection of materials used in the components construction. The reliability of individual system's components and how they affect overall system reliability are discussed. Several generic solar systems are compared and studied in detail. Preventive maintenance and troubleshooting applicable to each system are also covered. Lab sessions that put into practice the lecture material are included.

ENT 233 Advanced Solar Controls

3 Credits

Prerequisite: ENT 132

This course covers the general concepts of controls for flat-plate collector space heating systems. Control logic for complex systems is covered and set up in the lab. Failures are introduced into the system so that students may gain troubleshooting experience on the system level.

ENT 242 Passive Solar Systems II

4 Credits

Prerequisites: ENT 101, 141

This course presents an advanced study of passive design in buildings, advanced calculations and material and cost efficiency analysis.

ENT 265 Commercial Energy Audits and Conservation

3 Credits

Prerequisites: ENT 101, 165

This course deals with identifying energy losses within a commercial building and recommending how such losses can be minimized. The building structure, mechanical equipment, electrical system and maintenance practices are of prime consideration. Conservation measures and practices are stressed. Various commercial building energy audits are also discussed and conducted. An energy audit report is prepared and presented to the building manager or owner.

ENT 295 Passive Solar Design Project

5 Credits

Prerequisite: Permission of instructor

This course is a technical project including a written and approved proposal, scheduled progress reports and a finalized set of drawings.

ENT 298 Solar Lab

3-12 Credits

Prerequisites: Limited to second-year students, permission of instructor

This course enables students to improve their basic solar construction skills, such as soldering, brazing, use of power tools, panel design and construction.

ENGLISH

English assessment is required for new students before or during registration. The results will be used to advise students into courses in which they are prepared to succeed.

ENG 100 Composition Fundamentals

3 Credits

Prerequisite: A grade of "C" or higher in ENG 099 or an ASSET written score of 40 and a reading score of 38

This course prepares students to enter freshman composition and introductory technical writing courses. This course emphasizes basic sentence structure, punctuation and paragraph development.

ENG 121 English Composition I

3 Credits

Prerequisite: A grade of "C" or higher in ENG 099/100 or an ASSET written score of 43 and a reading score of 41

This course emphasizes the planning, writing and revising of compositions, the development of critical/logical thinking and reading skills used in basic research. Students write a minimum of five essays that stress analytical, evaluative, and persuasive/argumentative writing.

ENG 122 English Composition II

3 Credits

Prerequisite: ENG 121

This course enables students to produce writing that effectively uses research. Students learn to analyze, summarize, synthesize, evaluate, and interpret a variety of information from primary and secondary sources. This course also covers mechanical issues necessary for composing research papers, including outlining, paraphrasing, incorporating direct quotations, documenting information (*internal and works cited pages*), writing styles and library skills.

ENG 131 Technical Writing

3 Credits

This course develops skills one can apply to a variety of technical documents and job needs. Students learn principles for organizing, writing and revising clear, readable documents for industry, business and government.

ENG 215 Play Writing

3 Credits

This course enables students to learn and practice play writing techniques. Elements of dramatic structure, dialogue, styles and theatrical practices are emphasized. *This course is co-scheduled with THE 215 and may be taken as ENG 215 or THE 215 but not both.*

ENG 221 Creative Writing I

3 Credits

Prerequisite: A grade of "C" or higher in ENG 121 or 131, an ASSET written score of 43, a reading score of 41 or permission of instructor

This course introduces the imaginative uses of language, techniques and terminology necessary for the creation and appreciation of short fiction and poetry. Instruction consists of discussions, readings and in-class critiques of student work.

ENG 222 Creative Writing II

3 Credits

Prerequisite: ENG 221 or permission of instructor

This course continues development of written expression in such forms as poetry, fiction and/or nonfiction writing.

ENG 225 Topics In Advanced Composition

1-3 Credits

This course deals with specific themes and structures relating to uses of the English language. Lessons range from exercises in mechanical structures to explorations of implications for human communication and action.

**ENVIRONMENTAL SAFETY
TECHNOLOGY****EST 100 Fundamentals of Environmental Compliance**

3 Credits

This course introduces students to the field of environmental compliance. Students learn the basics behind environmental and ecological problems, environmental science, the regulatory process to control pollution, legal authority and structure and compliance strategies.

EST 102 Environmental Regulatory Framework

3 Credits

This course introduces students to the current regulations effecting hazardous materials and the environment. It includes an overview of regulatory agencies such as EPA and OSHA and the impact of these regulations and methods of compliance.

EST 104 Health and Safety Applications (OSHA Training)

3 Credits

This course presents the fundamentals of health and safety during the handling and management of hazardous materials. This course also focuses on proper health and safety procedures during work operations at hazardous waste sites based on OSHA requirements.

EST 111 Chemistry of Hazardous Materials I

3 Credits

This course presents the basic principles of why hazardous materials and why they behave the way they do. Students are introduced to the types of compounds that make up the different classes of hazardous materials, the chemical and physical properties of matter, theories of fire, pyrolysis and bond energies.

EST 112 Chemistry of Hazardous Materials II

3 Credits

This course is a continuation of EST 111. Additional chemical principles and the specific hazards of flammable liquids and solids, oxidizing agents, corrosives, toxic substances, explosives, radioactives and cryogenic and compressed gases are covered in-depth.

EST 205 Hazardous Materials and Waste Management

3 Credits

This course examines the practice and procedures of hazardous materials and hazardous waste management. Topics include definitions of hazardous substances and wastes, environmental and ecological impacts, chemical use and process review, industrial hygiene, worker safety, hazard communication, emergency response planning, source reduction and waste minimization.

EST 213 RCRA Compliance

3 Credits

This course reviews the major requirements of the hazardous and solid waste regulations contained in federal and state law. The course details regulatory authority and implementation of regulatory requirements. Topics include solid and medical waste management; classification of waste materials, generator and transporter; Treatment Storage and Disposal Facility (TSDF) requirements; and land disposal restrictions and underground storage tank (UST) requirements.

EST 215 Field Sampling and Laboratory Analysis

3 Credits

This course teaches students the proper techniques for field sampling drums and containers and hazardous materials released into soil, surface water and groundwater. Topics include proper use and maintenance of equipment, sample preparation, quality control procedures, chain of custody and analytical instruments and techniques. Interpretation of data are also discussed.

EST 225 Introduction to Air Toxins and Pollution Control

3 Credits

This course examines the Federal Clean Air Act, state air programs and special topics as they apply to toxic air contaminants and air pollution control. Topics include types of air contaminants, meteorology, stationary and mobile sources of air pollution, air dispersion modelling, risk assessment, air pollution treatment technologies and control strategies and indoor air pollution.

**EST 230 Hazardous Materials Response and
Emergency Planning**

3 Credits

This course focuses on the planning for and response to hazardous substance emergencies. Students are introduced to the classification/identification of hazardous materials and the regulatory requirements for emergency planning. Topics include incident management, control of contaminated materials and contingency planning.

EST 235 Hazardous Materials Transportation

3 Credits

This course focuses on hazardous materials and waste during shipping preparation and transit. It includes a review of the regulatory requirements and interfaces between the Department of Transportation, EPA and state agencies. Packaging, labelling, marking, placarding, shipping papers, manifests and driver responsibilities are discussed in detail.

EST 295 International Environmental Management Systems

3 Credits

This course addresses international management systems and quality assurance programs such as ISO 9000 and ISO 14000. This course discusses the roles of international organizations and the standards development process. The course focuses on the requirements of ISO 9000 and ISO 14000 for quality assurance and environmental management systems.

ENVIRONMENTAL SCIENCE

ENV 101 Environmental Science

4 Credits

This course introduces students to the basic concepts of ecology and the relationship between environmental problems and biological systems. This course also includes discussions on biology, chemistry, geology, energy, natural resources, pollution and environmental protection.

FILM/VIDEO TECHNOLOGY

FVT 100 Introduction to the Film and Television Industries

3 Credits

This course examines the multi-billion dollar film and television industries and focuses on the market, its trends and the aesthetics. Topics include the structure of the studios and networks, their histories and aesthetics; finance, distribution, and exhibition and where it's all headed.

FVT 105 Video Production I

3 Credits

Corequisite: FVT 160

This course is a hands-on introduction to video production. Students work in groups structuring and shooting original projects to be edited in FVT 160. Students are responsible for learning and handling departmental cameras, tripods and lights while working on projects outside of class time. Class time is divided between examining video production in the textbook and production planning.

FVT 110 Production Management Techniques

3 Credits

This course examines the art of managing the transition from the screenplay to the finished product. Pre-production planning and budgeting, principal photography and editing and post-production are explored using a typical motion picture project as a model.

FVT 145 American Cinema (Telecourse)

3 Credits

This course is an excellent PBS telecourse that uses a textbook by John Belton. Please see the telecourse listings for a full description.

FVT 150 Development of Film Expression

3 Credits

This course examines the nature and structure of film/video expression concentrating on the way directors, editors and cinematographers use visual techniques to serve the narrative. Students watch films in their entirety and analyze them for their mise en scene (lighting, composition, camera position and movement, lens, depth of field and the use of screen space) and editing techniques. This course transforms the student from a passive to an active viewer of film/video.

FVT 153 Introduction to Film Production

3 Credits

This course is an introduction to the processes and considerations involved in film production. The course covers film stocks, laboratory and processing, crew positions and responsibilities, rudimentary lighting and exposure considerations. This is a course that involves both textbook and hands-on work.

FVT 155 Script Writing for Film and Video

(formerly FVT 250)

3 Credits

Corequisite: FVT 105

This course develops students' screenwriting skills. It focuses on the basic format of the craft, scene construction, genre conventions, three act structure, characterization and idea generation. Students develop and complete a shootable script for a thirty minute film/video production by the end of this course.

FVT 160 Video Post Production I

3 Credits

Corequisite: FVT 105

Students edit their two production projects in this course while completing other editing assignments and learning the basics of broadcast signal, VTR operations, vectorscope, waveform monitors, timecode, edit decision list creation and editing aesthetics. Students are expected to work on the Sony, JVC, and Panasonic cuts only edit systems, both in and outside of class time.

FVT 200 Video Production II

3 Credits

Prerequisite: FVT 105, 150, 160

Corequisite: FVT 215

Students engage in more advanced productions using more sophisticated techniques and equipment in completing two original video productions. Preproduction planning and budgeting, working with actors and resource management with the aim of maximizing production value are stressed.

FVT 205 Film/Video Camera Equipment and Techniques

3 Credits

Prerequisite: FVT 105, 150, 160 or permission of instructor

This course examines how video and 16mm cameras work, and various techniques used in composition and the acquisition of images. Lenses, light, filters, formats, CCD's, cranes, dollies, and jib-arms are discussed and utilized. The narrative importance of different camera angles, movements and focal planes are analyzed. Students are required to shoot specific exercises both in and out of class.

FVT 206 Film/Video Lighting and Grip

3 Credits

Prerequisite: FVT 105, 150, 160 or permission of instructor

Basic lighting equipment (lights, stands, nets, flags, grids, diffusion, light meters, waveform, etc.) are covered. Lighting aesthetics in both interior, exterior, location and studio settings; lighting for closeups, large areas and product shots and balancing for color temperature are explored.

FVT 208 Sound for Film and Video

3 Credits

Prerequisite: FVT 105, 150, 160

This course covers sound acquisition (equipment and techniques), matching sound to image (perspective and sync), as well as post production methods (ADR, foley, voice over, music) on both analog and digital formats. This is a hands-on course using professional standards and teaches students to maintain creative control over audio.

**FVT 209 Production Management Techniques
(formerly FVT 106)**

3 Credits

Prerequisite: FVT 105, 150, 155, 160

This course is one of Colorado's finest, most in depth production management courses. Students break down a one hour TV show into its component parts, then plan and schedule the shoot using production boards. Students complete a full professional budget for the shoot including pre-production, production and post-production considerations.

FVT 215 Video Post Production II

3 Credits

Prerequisite: FVT 105, 150, 160

Corequisites: FVT 200

Students edit their Production II projects utilizing A/B roll techniques with Beta SP output as well as completing other assignments. Editing aesthetics, cutting on action, cutting for narrative, rhythm editing, and cutting for continuity are stressed. Students use Video Toaster 4000, Studio 16 digital audio, and United Media edit controller as well as the Sony PVE 500 A/B roll controller both in and out of class.

FVT 220 16mm Production

3 Credits

Prerequisites: FVT 105, 150, 153, 160

This course explores the 16mm crystal sync camera and the crystal Nagra for sound sync procedure. Other areas covered during production of a class project include crew positions and responsibilities, lighting, story boarding, film stocks and labs and the telecine process. Students shoot on film and then edit on video.

FVT 254 Introduction to Digital Editing—Adobe Premier

3 Credits

Prerequisite: CIS 110, FVT 105, 150, 160

This course is an introduction to digital non-linear video editing in our high end Mac lab. Digitizing, compression boards, outputting and integrating with other software (After Effects) are covered. Video, audio, stills and graphics are integrated in a final project output to tape or CD.

FVT 260 Screen Writing for Feature Films

3 Credits

Prerequisite: FVT 105, 160, 150, and 155

This course is for students who are interested in writing for feature film markets. Students develop a 30-40 page "treatment" for a feature length screenplay including all of the elements (scenes, structure and characters) of the finished script without dialogue and detail.

FVT 265 Advanced Screen Writing for Feature Films

3 Credits

Prerequisite: FVT 105, 150, 155, 160, and 260

This course enables students to develop their treatments written in FVT 260 into finished feature length (120 page) screenplays. By the end of the course students should have a marketable, polished script. Experienced writers with a script under development may also join this course.

FVT 270 Film/Video Production III

3 Credits

Prerequisite: 105, 150, 155, 160, 200, 206, 209, 215

Corequisite: FVT 254 or 280

This course is designed for advanced students. Individual projects are initiated using film or video for acquisition, mastered or transferred to Beta SP or digital formats, and cut on Avid or another digital nonlinear online system with multiple audio tracks. This course is for the creation of a show reel leading to employment in the industry. Students are expected to perform to industry standards of professionalism.

FVT 280 Introduction to AVID Media Composer

Prerequisite: 105, 150, 155, 160, 200, 215, 254

Corequisite: FVT 270

Students are introduced to the four AVID Media Composer 8000's in the AVID Training Center. Inputting, outputting, editing on the timeline, database management, titling, effects and sound are covered. Students are allotted time outside of class to learn the system and edit their FVT 270 projects.

FVT 297 Cooperative Education

Prerequisite: FVT 105, 150, 160, 200, 215

This is an internship that is arranged by the student and approved by the instructor. The student is required to work a minimum of 160 hours in the industry. Internships may include KRMA Channel Six, Arvada Community Television, Denver Community Television, Dewey/Obenchain Films, Denver Center Media, Reel Things and Lighting Services Inc.

FVT 299 Independent Study

Prerequisite: FVT 105, 150, 160, 200, 215, 270 or permission of instructor

This independent study course includes advanced projects for students in film or video, production or post-production.

FINANCIAL SERVICES

FIS 151 Securities Industry I: Operations

3 Credits

This course presents the principles of brokerage customer accounting. Students learn the basics of issuing stocks and other securities and then concentrate on the functions of the order room, purchase and sales department, new accounts processing, cashing, margin, stock recording, accounting and other service and processing operations. Students examine the functions and interrelationships of the various operations departments. (*Night and Spring Session Only.*)

FIS 152 Securities Industries II: Products

3 Credits

This course introduces students to the many, varied products of the investment industry including cash investments, debt and equity instruments, mutual funds and insurance and retirement products. (*Night and Spring Session only.*)

FIS 205 Bank Investments and Funds Management

2 Credits

This course provides students with the knowledge and skills they need to implement their bank's investment and funds management strategies to earn an acceptable return without undue risk.

FIS 206 Law and Banking

3 Credits

This course provides reviews the legal aspects of banking. It equips students with a clear, non-technical understanding of all aspects of the legal system that directly affects banks.

FIS 210 Consumer Lending

3 Credits

This course provides an overview of the consumer credit operation by examining the role of consumer credit in overall banking operations. This course also offers an understanding of the consumer credit function within a bank.

FIS 212 Commercial Lending

3 Credits

This course focuses on the commercial lending environment and how the commercial lending business is organized. Students learn how the commercial lending business is organized and how it contributes to the profitability of the institutions and how the commercial lending process functions from the initial loan application through collection.

FIS 217 Principles of Banking

3 Credits

This is an introductory course which examines almost every aspect of banking. It provides a comprehensive look into the diversified services offered by the banking industry. This course includes materials on bank accounting, pricing and profitability and expands the discussion on the personnel and security functions of the bank.

FIS 218 The Trust Business

3 Credits

This course reviews the trust department, including how the trust department fits into the overall banking business, the service it provides and, in general, how those services are delivered. The changing role of the trust department is highlighted.

FIS 219 Residential Mortgage Lending

3 Credits

This course focuses on the residential mortgage lending environment and gives students a better understanding of the fundamentals of mortgage lending. Students learn to describe the mortgage lending industry, including the market, customer base, government regulations and alternative mortgage instruments. Students also learn to identify the benefits, requirements and classifications of mortgage insurance; process and underwrite a residential mortgage loan; market residential loans; and identify general principles of real estate. Students also are able to describe the secondary mortgage market and how mortgage-backed securities have become important to mortgage lenders in the market.

FINE WOODWORKING

(*See Construction Technology.*)

FIRE SCIENCE TECHNOLOGY

FST 100 Essentials of Firefighting (Firefighter I)

3 Credits

Corequisite: FST 297

This course is a classroom section in which the *IFSTA 200 Essentials of Firefighting Manual* is taught. Basic firefighting skills in forcible entry, fire suppression, fire prevention, equipment and basic fire ground procedures are covered. This course is required for all students not presently working in the fire service.

FST 101 Firefighter II Academy

8 Credits

Prerequisites: FST 100, 297

This course comprises of roughly 360 contact hours and involves in-depth training in all aspects of firefighting. Firefighting skill in fire ground operations is covered and all required knowledge and skills are tested for State Certification as Firefighter II. The course is hands on intensive and is held at a fire academy training ground.

FST 102 Introduction to Fire Science and Suppression

3 Credits

This course presents a broad overview of fire suppression and prevention in the public and private sectors. The rudiments of fire history building construction, fire behavior, fire department organization and management, chemistry of fire, fire and arson investigation, methods of early detection and suppression, hazardous materials management, and initial fire attack and fire/emergency operations are studied.

FST 103 Firefighter Occupational Health and Safety

3 Credits

Prerequisites: FST 105, 297

This course stresses on-scene and on-the-job causes of firefighter injuries and deaths. Case studies emphasize the importance of determining the cause of injury and how to eliminate those causes. The importance of on-the-job safety, the safety officer, diet, physical fitness, mental well-being and stress management are discussed.

FST 104 Fire Protection Systems

3 Credits

Prerequisites: FST 100, 102, 105 or permission of instructor

This course provides students with an understanding of the principles and functions involved in the installation and use of sprinkler systems, special suppression systems, and fire detection and alarm systems. Students gain a working knowledge of where these systems are needed in relation to life safety hazards and various building occupancies and types of construction. Fire department involvement in systems maintenance and use are discussed.

FST 105 Building Plans and Construction

3 Credits

This course provides students with as much information as possible about the various methods of building construction, the materials used in building construction and their relationship to methods of fire attack and extinguishment. Using the knowledge acquired in this course, the firefighter can greatly enhance the efficiency and ease of extinguishment and the safety of the firefighting forces on the fire ground.

FST 106 Fire Inspection Practices

3 Credits

This course provides students with an understanding of the function, goals and operation of a fire prevention inspection bureau and the importance of company inspections and pre-planning. Hazards and the cause of these hazards and methods to correct them are discussed in depth. Students are introduced to classes of building construction, occupancy hazards, protection systems and devices necessary to protect building and occupancies from hazards to life and property.

FST 107 Hazardous Materials Awareness and Operations Level

3 Credits

Prerequisites: FST 100, 105; CHE 101 or permission of instructor.

This course studies the physical and chemical properties of different compounds which render fire fighting abnormally dangerous and hazardous. The classes of compounds including flammable and combustible liquids, compressed gases, cryogenics, solids, water reactive compounds, oxidizers, explosives, Class A and B poisons, corrosives, plastics and radioactive materials are covered. These compounds, how they react to each other and endanger the life of the firefighter and society in general are also discussed. (*State Certification*)

FST 110 Job Placement and Assessment

3 Credits

This course introduces entrance firefighter candidates to a program that they may use to successfully begin a career in the Fire Service. This course discusses the various aspects of the Fire Service entrance exam process and zeros in on the different components of the exam including the written, physical abilities, oral interview and resume preparation. Students learn to identify any deficiencies they may have regarding various exam topics and to identify a means to improve in these areas.

FST 111 Private Fire Protection Systems

3 Credits

This course is designed to give the non-firefighter student an insight into the installation, maintenance and inspection of automatic detection, suppression and alarm systems. Special extinguishing systems are also presented. The criteria that is used to determine what type of protection system to utilize is covered in depth.

FST 112 Fire Service Planning

3 Credits

This course provides students with the knowledge and skills to set goals for a fire department in budget, operations, training, equipment, prevention and administrative needs. Items such as planning for expansion and new fire houses are included.

FST 113 Intro to Fire Prevention Awareness

3 Credits

This course enables students to introduce and maintain fire prevention awareness and educational programs for private industry, governmental agencies and to the public.

FST 114 Fire Company Organization Procedures

3 Credits

This course prepares Company Officers and Shift Officers with skills needed to plan, organize, and implement programs for the management and planning of all functions associated with single company emergency and non-emergency functions.

FST 115 Introduction to Industrial Fire Protection

3 Credits

This course is designed for Fire Engineer students and reviews the rudiments of fire science as it pertains to the private or industrial sector. Fire behavior and the chemistry of fire are covered in depth. Human behavior in life threatening situations, fire detection, suppression and alarm systems, fire extinguishing agents are also covered.

FST 116 Industrial Fire Prevention

2 Credits

This course gives the Fire Engineer student an understanding of the function and goals of a fire safety professional in private industry. Industrial fire hazards, the cause of these hazards and methods of correcting these hazards are discussed and illustrated in depth. OSHA regulations pertaining to the establishment of industrial fire brigades, their training, equipment, functions and duties, and the training of employees other than the fire brigade are also discussed.

FST 120 Confined Space Entry and Rescue

3 Credits

This course provides students with the knowledge and skills to safely and effectively work and rescue personnel in a confined space and follow all OSHA and NFPA standards for confined space entry.

FST 121 Rope Rescue Module I

1 Credit

This course is designed to give students the rudimentary skills necessary to accomplish low angle and moderate high angle rescues utilizing rescue rope and its associated hardware. Students become familiar with the setup and modification of various rescue systems in order to accomplish rescue in a changing environment. This includes rope construction, knots, types of hardware equipment, care and maintenance of equipment, belay systems, repel systems, lowering and raising systems and related medical treatment of patients.

FST 122 Rope Rescue Module II

1 Credit

This course is the intermediate Rope Rescue module that builds on the skills learned in Module I. This is a hands on course focusing on high angle rescue. Repel and belay systems are reviewed, demonstration of lowering and raising systems, and single rescuer high angle rescues are performed in a realistic field environment.

FST 123 Rope Rescue Module III

1 Credit

Prerequisites: FST 121, 122

This is the last module in the Rope Rescue series and builds on the skills taught in the previous two modules. High angle victim rescue is the central theme of this class. Victim evacuation using stokes litters both in attended and unattended rescues are accomplished on actual cliff sites. Raising and lowering systems are utilized for victim evacuation with the stokes as well as some repelling. Medical treatment of victims is discussed.

FST 127 Technical Heavy Rescue

3 Credits

Prerequisites: FST 100, 120, 297

This course is for students who have general knowledge of the fire service and are at least Firefighter I certified (*certifiable*), and have taken the Confined Space entry program. The course is the first in a series that focuses on heavy extrication procedures. The course devotes an equal amount of time to both lecture and practical exercises.

FST 150 Public Fire Prevention and Education

3 Credits

This course provides students with the knowledge and skills to conduct prevention and education needs assessment, targeting audiences, developing and delivering programs, and conducting fire prevention, safety inspections and courses.

FST 151 Driver Operator

3 Credits

This course provides students with the knowledge and skills to safely operate emergency vehicles according to NFPA standards and meets all requirements for State Driver Operator Certification. Students are able to display a knowledge of fire apparatus, operation of apparatus, pumps, aerial devices, driving, maintenance, and testing and demonstrate apparatus driving skills on a NFPA/State of Colorado driving course.

FST 152 Wildland Firefighting

3 Credits

This introductory course is designed to give students a basic understanding of wildland fire and the strategies and tactics involved during suppression operations. Fire line safety is also covered in depth, emphasizing the wildland fire orders and watch out situations. Students receive training which qualifies them as Certified Wildland Firefighters under the Incident Command System and is recognized by the National Wildfire Coordinating Group. Fire behavior, fire weather, fuel types, safety equipment and guidelines, incident size up, determining resource needs, aircraft identification and capabilities, direct vs. indirect attack, burn-out, backfiring and map reading are also covered.

FST 201 Instructional Methodology (Fire Instructor I, II)

3 Credits

Prerequisites: FST 100, 102 or permission of instructor

This course studies management and operation of a training division and company training. Emphasis is placed on the safety of firefighters on the fire ground, in training and general on-the-job safety. Training techniques that have been developed and are recognized nationally are emphasized. The course also includes record keeping, and state and national reporting requirements.

FST 202 Fire Fighting Strategy and Tactics

3 Credits

Prerequisites: FST 102, 104, 107 or permission of instructor. Basic firefighting tactics and strategy, methods of fire attack, and preplanning are discussed in depth. Rescue procedures such as building collapse, cave-in, landslide and vehicular accident extrication are also studied.

FST 203 Fire Science Hydraulics

3 Credits

Prerequisites: FST 105, 209 and FST 297; MAT 100 or permission of instructor

This course provides a working knowledge of the hydraulic calculations that are necessary in water supply and delivery in fire protection and suppression. Hydraulic laws and formulas as applied to the fire service are studied.

FST 204 Fire Codes and Ordinances

3 Credits

Prerequisites: FST 102, 104, 105

This course provides an overview of the Uniform Fire Code with reference to other applicable codes including the Uniform Building Code and Life Safety Code. After taking this course, students should be able to apply the requirements of the Uniform Fire Code to practical job and inspection situations and prepare for the ICBO Certification exam.

FST 205 Fire Cause Determination

3 Credits

This course provides students with proper methods of conducting basic fire investigation, determining area and point of origin, cause and methods of fire spread, recognition and preservation of evidence, arson law, constitutional law, interviewing court procedures and testimony are discussed.

FST 206 Fire Company Supervision and Leadership (Fire Officer I)

3 Credits

Prerequisites: ENG 121; FST 102, 202 or permission of instructor
This course provides insight into the management of a fire company. Organization theory, management functions, and leadership skills are analyzed and discussed. Through the use of simulation and case studies, students should gain knowledge of management and leadership skills required of fire service manager in both the staff and line capacities.

FST 207 Strategy and Tactics II

3 Credits

This course provides the skills and knowledge for the career firefighter in handling complex fire, EMS, and hazardous materials incidents and working with the incident command system, other resources, and private and public entities.

FST 208 Codes and Ordinances (Advanced)

3 Credits

Prerequisite: FST 204

This course provides students with advanced skills and knowledge in the Uniform Fire Code and Local Codes and Ordinances and in preparation for the ICBO Certification.

FST 251 Fire Service and the Law

3 Credits

This course is designed to provide the professional fire officer with detailed information on federal, state and local laws and ordinances that impact the fire service and studies the OSHA and NFPA standards in depth.

FST 252 Arson Investigation

3 Credits

Prerequisites: FST 102, 205 or permission of instructor
This course provides insight into the basics of fire investigation. How to determine area and point of origin, and cause and method of spread of fire are discussed. Recognition and preservation of evidence of arson, arson law, constitutional law, interviewing witnesses, court procedures and testimony are stressed.

FST 253 Incident Command/ Command of Major Incidents

3 Credits

Prerequisite: FST 202

This course explores the dynamics of managing major emergency incidents. The *National Incident Command System* is utilized in the instruction. Major incidents where large life, property or economic losses are possible are studied. Actual incidents are discussed and analyzed. This course recognizes that learning from the experience of others in handling major emergencies is required in the preplanning of emergencies in our own communities.

FST 254 Hazardous Materials Technician Level

6 Credits

Prerequisites: FST 102, 107 or Operations level certificate
This course is designed to help first responders achieve an advanced knowledge of hazardous materials handling and mitigation. This class goes beyond merely awareness. It studies the various options available to us in bringing hazardous materials incidents to safe conclusions.

FST 255 Fire Service Management

3 Credits

Prerequisites: FST 105, 202, 206

This course introduces students to current management practices and philosophies. Real world applications from the supervisors viewpoint is stressed by using numerous and varied examples. In addition to organizing, delegating, planning, and controlling, the course covers decision making, communication skills, conflict resolution, creativity and innovation. The role of the manager in supervising programs and divisions as it pertains to motivation, appraising budget, counseling, and handling discipline and grievances are discussed. The formal and informal work group are also discussed to some extent.

FST 256 Fire Administration (Fire officer III)

3 Credits

This course is designed to provide the upper management and fire chiefs with the skills and knowledge needed to manage and administer the needs of the fire department and to be an effective leader in today and tomorrow's changing fire service.

FST 257 Volunteer Fire Administration

3 Credits

This course provides volunteer fire chiefs and upper management with the skills and knowledge needed to lead the fire service into the future and discuss problems and solutions inherent in the fire service and in volunteer departments.

FST 258 Wildland Fire Incident Management and Organization

3 Credits

Prerequisite: FST 152; 1 year of wildland fire experience is preferred

This course introduces and develops supervisory and decision making skills for fire line management. The subjects covered match the curriculum required by the National Wildfire Coordinating Group under the Incident Command System. The course is taught in mini-modules at the intermediate level that may cover any or all of the following: I-200 Intermediate ICS, I-300 Multiple Resource ICS, S-230 Intermediate Firefighter, S-290 Intermediate Fire Behavior, S-260 Fire Business Management, S-270 Air Operations, and S-205 Fire Operations in the Urban/Wildland Interface. These courses are preparatory for the Federal Interagency Qualification trainee assignments for overhead personnel.

FST 259 Wildland Fire Strategies and Tactics

3 Credits

This course is identified training in the National Interagency Incident Management System. This training is required for those personnel serving in the operations function at the Strike Team/Task Force level or higher. This course is designed primarily to instruct single resource bosses and initial attack incident commanders. It is also valuable for operations supervisors qualified at higher management levels who have not received training in wildland suppression tactics. Planning, making tactical decisions, managing resources, determining incident resource needs, evaluating incident objectives, and deploying manpower and equipment are all covered in the following eight units.

FST 260 Fire Related Collapse of Buildings

3 Credits

Prerequisites: FST 102, 202

This course gives students an insight into the dangers of structural failure of buildings caused by fire. The course examines, in great detail, the subject of burning building collapse. The course shows exactly how brick walls fall down, explains exactly how floors cave-in, and describes exactly how stairs collapse, fire escapes crumble, and truss roofs fail. The main thrust of the course is to teach students how to survive burning building collapse.

FST 261 Fire Operations in the Urban Interface

2 Credits

Prerequisite: FST 152

This course was developed under the Interagency Curriculum established and coordinated by the National Wildfire Coordinating Group. The course is designed to give fire line personnel skills to anticipate and predict wildland fire behavior, weather and rates of spread. The course covers fire environment, fuels classification, topography and fire behavior, temperature-moisture relationship, fuel moisture, local and general winds, atmospheric stability and instability, keeping current with the weather, extreme fire behavior, fire behavior affecting fire line tactics and fire behavior predictions.

FST 265 Risk Management and Liability

3 Credits

This course alerts and informs fire departments, fire boards and firefighters of civil and criminal liabilities under the law. Colorado laws and statutes are reviewed by the instructor.

FST 290 Fire Science Advanced Topics

1-6 Credits

This series of courses is designed to encourage students to take advanced curriculum courses in areas of major concern to both the citizenry and the fire service. The credit earned from 290 courses is applied as elective credit only. *See an advisor.*

****FST 297 Fire Academy**

4 Credit

Corequisite: FST 290

This course is a drill ground program where hands-on practice of topics covered in FST 290 are utilized. This course is held at a local fire academy drill ground. This course is required for continuation into all FST 145 or above courses for all students not presently in the fire service.

FST 297 Cooperative Education (Internship)

1-6 Credits

This course must be arranged through the office of Job Placement/Cooperative Education and with approval of your advisor. This Internship allows students to gain experience and knowledge from on-the-job training. *Positions are non-paid.*

FST 299 Independent Study

1-6 Credits

Prerequisite: Permission of instructor only

This course encourages students to study advanced topics in areas of major concern to both the citizenry and the fire service. The credit earned from 299 courses is applied as elective credit only. *See an advisor.*

***These two courses (FST 100 and 297) are required for all students not working in the fire service. The objective of this program is to give students an opportunity to get educational experience early in their pursuit of a fire service career in order to be able to compete academically with experienced fire service students in the Fire Science Technology Program. These courses are also the first step in achieving NFPA Firefighter I Certification. Courses are offered in cooperation with local fire academies and Red Rocks Community College.*

FRENCH**FRE 101 Conversational French I**

3 Credits

This is the first course in a sequence for beginning students who wish to understand, read and speak French. The material includes basic vocabulary, grammar and expressions that are used in daily situations and in travel.

FRE 102 Conversational French II

3 Credits

Prerequisite: FRE 101 or permission of instructor

This is the second course in a sequence for beginning students who wish to understand and speak French. The material continues to cover basic conversational patterns, expressions and grammar.

FRE 111 Foreign Language I

5 Credits

This course begins a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

FRE 112 Foreign Language II

5 Credits

Prerequisite: FRE 111 or permission of instructor

This course continues the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

FRE 211 Foreign Language III

3 Credits

Prerequisite: FRE 112 or permission of instructor

This course continues the development of increased functional proficiency in listening, speaking, reading and writing. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

FRE 212 Foreign Language IV

3 Credits

Prerequisite: FRE 211 or permission of instructor

This course continues the development of increased proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to individual texts and instructors.)*

GEOGRAPHY**GEO 105 World Regional Geography**

3 Credits

This course introduces the spatial relationships between and among the geographic regions of the world. Topics include demographic and cultural (political, economic and historic) forces related to the physical environments of selected regions. Methods of study include analysis of and interrelationships between developed and developing regions.

GEO 106 Human Geography

3 Credits

This course is an introduction to geographic perspectives and methods with applications to the study of human activities, such as resource utilization, agricultural practices, settlement patterns, migrations, cultural activities and industrialization. Special emphasis is placed on spatial distribution, map interpretation and human impact on the environment.

GEOLOGY**GEY 111 Physical Geology**

4 Credits

This course studies the materials of the earth, the earth's structure, surface features and the geologic processes involved in its development. This course includes laboratory experience.

GEY 117 Map Reading

1 Credit

This course deals with the reading and interpretation of topographic and geologic maps.

GEY 118 Rock and Mineral Identification

1 Credit

This course focuses on the basic field methods for identifying igneous, sedimentary and metamorphic rocks as well as the major rock forming minerals.

GEY 119 The Great Ice Age

1 Credit

This course analyzes the effect of the Great Ice Age on the development of North America and also explores theories of climatic change.

GEY 121 Historical Geology

4 Credits

Prerequisite: GEY 111 or permission of instructor

This course studies the physical and biological development of the earth through the vast span of geologic time. It emphasizes the investigation and interpretation of sedimentary rocks, the record of ancient environments, fossil life forms and physical events, all within the framework of shifting crustal plates. This course includes laboratory experience.

GEY 125 Continental Drift

1 Credit

This course explores the history of continental movement and its relationship to earthquakes and volcanoes and the history of life.

GEY 135 Environmental Geology

3 Credits

This course introduces the relationship of applied geology to man's environment. An overview of geologic concepts and terminology precedes a study of geologic hazards such as floods, landslides, avalanches, earthquakes and volcanoes. Surface and groundwater hydrology are emphasized and man's responsibility to protect these resources from contamination. The geologic aspects of environmental health, land use practices and resource exploitation are reviewed and related to legislation regarding environmental law.

GEY 203 Map and Airphoto Interpretation

3 Credits

Prerequisite: GEY 111

This course is an introduction to the environment using airphotos, maps and remote sensing data. Emphasis is on the development of skills and reasoning ability required for the interpretation of geologic features. Aspects of forestry, agriculture, land use, engineering, urban planning and industrial problems are reviewed. Laboratory work includes practical use of the stereoscope, simple photogrammetric instruments, maps, photo-maps and air photographs.

GEY 205 The Geology of Colorado

2-3 Credits

Prerequisite: Permission of instructor

This course covers the geologic history of Colorado, with emphasis on formation of mountain ranges, igneous, sedimentary and metamorphic rock types ore deposits and land forms. Field experience and/or class room lectures are used to cover the material.

GEY 207 Geologic Field Methods

3 Credits

Prerequisites: GEY 111, 121

This course is an introduction to geologic mapping and methods of field investigation. Emphasis is on field identification of rocks; use of geologic instruments such as the Brunton compass, hand level, Jacob's staff, chain, etc.; preparing geologic maps; sampling techniques; notetaking; measuring and compiling columnar sections and writing reports. Laboratory work is held outdoors.

GEY 208 Geology Field Trip

2-3 Credits

Prerequisite: Permission of instructor

This course involves in-depth field studies into the geology of specific regions both within and outside Colorado. Trips lasting from one to several days length to the study area constitute the major activity of the course. The specific area of investigation are indicated in the *Class Planning Schedule* each time the course is offered.

GEY 215 Introduction to Mineralogy

4 Credits

Prerequisites: GEY 111 and high school chemistry or equivalent

This course studies the physics, chemistry origin and occurrence of minerals. Topics include techniques of mineral identification, the physical properties of minerals, crystallography, the genesis and occurrence of minerals and some economic geology as related to local mineral deposits. Field trips are taken to local mineral collecting areas.

GEY 225 Planet Earth

3 Credits

This telecourse focuses on recent developments and interrelationships in the sciences of geology, oceanography, meteorology and astronomy. Topics include continental drift, paleomagnetism, theories of climate change, the origin of the solar system, the sun's effect on earth, earth resources and man's impact on the environment.

GERMAN**GER 101 Conversational German I**

3 Credits

This is the first course in a sequence for beginning students who wish to understand and speak German. The material includes basic vocabulary, grammar and expressions that are used in daily situations and in travel.

GER 102 Conversational German II

3 Credits

Prerequisite: GER 101 or permission of instructor

This is the second course in a sequence for beginning students who wish to understand and speak German. The material continues to cover basic conversational patterns, expressions and grammar.

GER 111 Foreign Language I

5 Credits

This course begins a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

GER 112 Foreign Language II

5 Credits

Prerequisite: GER 111 or permission of instructor

This course continues the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

GER 211 Foreign Language III

3 Credits

Prerequisite: GER 112 or permission of instructor

This course continues the development of increased functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

GER 212 Foreign Language IV

3 Credits

Prerequisite: GER 211 or permission of instructor

This course continues the development of increased proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to individual texts and instructors.)*

GERONTOLOGY

GPM 100 Introduction to Gerontology

3 Credits

This introductory course focuses on the characteristics and concerns of older persons. Topics of discussion include demographic and economic trends of the older population and the sociological, psychological, physiological and cultural aspects of aging.

GPM 102 Community Resources for Seniors

3 Credits

This course is designed to enable the student to gain a better understanding of existing programs and services geared to the needs of older adults. Major legislation and funding mechanisms are identified. Goals, target populations and important components of these programs are explored.

GPM 103 Contemporary Issues in Aging

3 Credits

This course examines current topics and issues in the field of gerontology. Topics include demographic trends and their impact on social policy and aging legislation, health care, retirement, income maintenance and leisure; intergenerational concerns; advocacy and the challenge of growing old positively.

GPM 104 Elderly with Special Needs

3 Credits

This course studies older adults with special needs including racial and ethnic minorities, women, the old-old, institutionalized elderly and older persons with Alzheimer's disease and related disorders. Other topics covered are the homeless, chronically mentally ill or chronic alcoholics and residents of single-resident occupancy hotels; caregivers of the elderly, the elderly with no family to care; and persons with sensory and physical impairments that restrict mobility.

GPM 105 Health and Wellness for the Aging

3 Credits

This course focuses on the specific health factors involved in the aging process, including the biology of aging, medications, depression, senility, Alzheimer's, nutrition, exercise, stress, wellness, caregiving, the health care system and other topics.

GPM 106 Elderly Law

½ Credit

This course explores some of the issues in elderly law which most directly impact health care providers, such as legal competence, informed consent, living wills, guardianships, powers of attorney and elder abuse. Ethical issues are addressed as necessary, but the focus of this course is on law rather than ethics.

GRAPHICS AND ANIMATION TECHNOLOGY

GAT 106 Adobe Illustrator

3 Credits

Prerequisite: CIS 113

This course acquaints students with the processes of a professionally used draw/paint program on the Macintosh computer. Stylization, typography and color are used as design elements to produce original, camera-ready art for publication.

GAT 115 Color Theory

3 Credits

Prerequisites: GAT 106, CIS 113

This course covers color theory as it relates to the printing industry and multimedia. The psychology of color is taught as well as how to effectively design with color. Students learn how to correct color photographs and create color separations ready for printing. Color scanning technology is also covered.

GAT 120 Adobe Photoshop I

3 Credits

Prerequisite: CIS 113

This course provides an introduction to digital graphics prepress. It studies image processing and special effects. Chemical free darkroom and illustration techniques are also covered along with graphics/text integration.

GAT 125 Quark XPress

3 Credits

Prerequisite: CIS 113

This course introduces students to both the Macintosh computer and to digital desktop publishing. Students learn how to assemble, organize, manipulate and manage text and graphics to produce a high quality publication. Class discussions and independent projects are supplement hands-on classroom work. Examples and exercises are diverse, including magazine, journal, brochure, poster, advertisement and packaging layouts. Studies include printing basics, allowing the student to produce either a stand alone desktop publication, or to complete prepress work for offset printing and output devices.

GAT 127 Electronic Prepress

3 Credits

Prerequisite: GAT 125

This course explores in detail the electronic prepress process. Preparing a digital file for press, trapping, output considerations and proofing techniques. Creating effective electronic designs and efficient use of today's software programs are also covered.

GAT 201 Animation and Rendering

3 Credits

Prerequisite: CIS 113 and GAT 106

This course is an introduction to the art of animation and rendering with a focus on movement and story development. Traditional and computer techniques are discussed. Students produce complete animations and transfer them to video tape or other visual mediums.

GAT 220 Adobe Photoshop II

3 Credits

Prerequisite: GAT 120 or equivalent experience

This course develops and reinforces techniques learned in GAT 120. Fundamentals are continuously reinforced as new techniques are introduced. Students are expected to produce two final proofs from outside sources.

GAT 290 Special Topics

3 Credits

Prerequisite: Permission of instructor

This course provides an opportunity to examine new technology and advanced techniques in computer art.

HEALTH OCCUPATIONS**HEO 100 Medical Terminology**

3 Credits

This course is a systematic and in-depth study of medical terminology that teaches the origin and structure of medical terms. Students learn to interpret and pronounce medical terms used in various medical occupations and other related areas.

HEO 104 Anatomy and Physiology for Health Occupations

4 Credits

This non-laboratory course enables health care workers to have a basic knowledge of anatomy and physiology.

Structural components of each body system as well as the functional components are emphasized.

HEO 112 Radiography Exam Review

2 Credits

This course is a review for medical personnel currently working in outpatient care facilities. It is intended as a review in preparation for the IETP Limited Scope Examination. Content areas include radiation protection, equipment operation and maintenance, image production and evaluation, radiographic procedures and patient care and management. Pre- and post-testing is utilized.

HEO 210 Pathophysiology for Health Occupations

4 Credits

Prerequisites: HEO 104 or equivalent

This course focuses on the human body and the consequences of a disruption of body processes. Anatomy and physiology of body systems is reviewed along with pathologic conditions within each organ system.

HEO 220 Pharmacology for Health Occupations

3 Credits

Prerequisites: HEO 104 or equivalent

This course covers the classification, indications, actions, side effects, administration of medications. Dosage calculations and conversions are also presented.

HEO 230 Clinical Skills for Medical Office

4 Credits

Prerequisites: HEO 220 or equivalent

This course prepares students to assist in various ambulatory, outpatient care facilities. Content areas include universal precautions and infection control, vital signs, assessment, patient history, physical examinations, EKG skills, radiology applications, pulmonary function testing and administration of medications.

HEO 240 Medical Office Laboratory Skills

4 Credits

Prerequisite or Corequisite: HEO 230 or permission of instructor

This course prepares students to perform diagnostic laboratory procedures in ambulatory, or outpatient care facilities. Topics include basic laboratory equipment, venipuncture, hematology, clinical chemistries, microbiology, urinalysis and blood typing.

HEO 250 Ethics in Health Care

3 Credits

This course covers the development of ethics in Western tradition and applies principles to present-day health care.

Utilizing ethics as a tool to clarify objectives in health care are discussed, but the primary emphasis is the application of ethics as a tool in analytical thought.

HEO 297 Medical Assisting Internship

6 Credits

Prerequisite: Permission of instructor

This medical internship allows students to gain experience and knowledge from on-the-job training. Prior to the clinical internship, students need to have completed First Aid through the American Red Cross and CPR for health providers through the American Heart Association. Students also need to demonstrate freedom from communicable disease by providing proof of immunizations. *(270 hours of internship)*
Positions are non-paid.

HISTORY

HIS 101 Western Civilization I

3 Credits

This course explores the major political, economic, social, diplomatic, military, cultural and intellectual events and the roles of key personalities that shaped Western civilization from the prehistoric era to 1715.

HIS 102 Western Civilization II

3 Credits

This course explores the major political, economic, social, diplomatic, military, cultural and intellectual events and the roles of key personalities that shaped Western civilization from 1650 to the present.

HIS 115 Personalities and Issues

3 Credits

This course identifies and describes noteworthy personalities and issues that have affected the development of critical periods in history.

HIS 116 The Native American Experience

3 Credits

This course is an introduction to the Native American's historical and socio-cultural development with emphasis upon those processes and relations with non-Native Americans, which have contributed to the current conditions.

HIS 137 Contemporary World History

3 Credits

This course investigates the major historical and cultural developments of various global regions and nation-states from 1900 to the present.

HIS 201 U.S. History I

3 Credits

This course examines the major political, economic, social, diplomatic, military, cultural and intellectual events in American history from the first inhabitants through the Civil War and Reconstruction.

HIS 202 U.S. History II

3 Credits

This course examines the major political, economic, social, diplomatic, military, cultural and intellectual events in American history from Reconstruction to the present.

HIS 215 Women in U.S. History

3 Credits

This course surveys women's changing roles in American history from the colonial period to the present. Special emphases are placed upon the nature of women's work and the participation of women in the family, church and reform movements.

HIS 225 Colorado History

3 Credits

This course presents the story of the people, society and cultures of Colorado from the earliest Native Americans, through the Spanish influx, the explorers, the fur traders and mountain men, the gold rush, railroad builders, the cattlemen and farmers, the silver boom, the tourists and the modern twentieth-century state.

HIS 236 Contemporary United States History

3 Credits

This course surveys the major political, economic, social and cultural developments that have shaped twentieth-century America.

HIS 255 Democratic Ideas

3 Credits

This course analyzes and evaluates the historical development of individual and social freedom as a political value and ethical concern.

HIS 276 History of Meso-America

3 Credits

This course traces the history of the indigenous people of Mexico from the first inhabitants through the conquest by the Spanish in 1521 A.D. Special emphasis is placed on such cultures as the Olmec, Maya, Toltec, Totonac, Teotihuacan and Aztec. Topics include the daily life, religion, art, social and political organization and other historical characteristics of these groups of people.

HOSPITALITY, TOURISM AND TRAVEL

HTT 105 Introduction to Travel and Tourism

3 Credits

This is an introductory course in the travel and tourism field. Students gain a basic overview of the tourism field and learn how to use materials such as airline guides, hotel planners and cruise line manuals. The materials are used to coincide with major destination attractions. *(Night only; summer and fall only)*

HTT 106 Travel Geography

3 Credits

This course provides students with knowledge of destination geography and enhances their product knowledge as to why a destination is visited. *(Night only; summer and fall only)*

HTT 107 Group Tour Development

3 Credits

Corequisite: HTT 105

This course studies the administration of various types of group travel and includes the role of tour conductor and functions of the tour wholesaler/operator (planning, negotiations, packaging and marketing). *(Night and fall session only)*

HTT 108 Convention and Meeting Planning

3 Credits

This course enables students to understand meeting planning techniques. *(Night and spring session only)*

HTT 109 Introduction to Hotels

3 Credits

This course examines the operations of hotels and resorts. *(Night and fall session only)*

HTT 110 Hotel/Motel Management

3 Credits

Prerequisite: HTT 109 or previous related work experience
This course examines the management and organization of hotel operations and includes the study of the legal environment, entrepreneurship and human resources. *(Night and spring session only)*

HTT 111 Introduction to Computer Reservations

3 Credits

Corequisite: HTT 105

This course provides the basics necessary for an entry-level reservationist position. Students should be able to complete all steps from incoming phone calls to building a passenger name record to issuing a ticket with the aid of an automated airline reservation system. *(Night and fall session only)*

HTT 112 Advanced Computer Reservations

3 Credits

Prerequisite: HTT 111

This course is a continuation of HTT 111 and explores various airline systems. *(Night and spring session only)*

HTT 215 Travel Agency Operation and Management

3 Credits

This course examines the management and organization of travel agency operations. It includes the study of the legal environment, entrepreneurship and human resource development.

HUMANITIES

HUM 121 Survey of Humanities I

3 Credits

This course introduces students to the history of ideas in Western cultures through a study of the visual arts, literature, drama, music and philosophy of early civilizations, Greek and Roman antiquity and Christian eras. It emphasizes the connections among the arts, values and diverse cultures.

HUM 122 Survey of Humanities II

3 Credits

This course examines the Medieval Renaissance and Baroque periods through a study of the visual arts, literature, music and philosophy. It compares and contrasts diverse cultural ideas and feminine and masculine viewpoints.

HUM 123 Survey of Humanities III

3 Credits

This course examines the cultures of the 17th through the 20th centuries by focusing on the interrelatedness of the arts, ideas and history. It considers the influences of industrialism, scientific development and non-European peoples.

HUM 126 Folklore of Mexico and the Southwest

3 Credits

This course traces the history and cultural heritage of the Mexican and the people who populate the southwest part of the United States. Students study the ancient cultures before the arrival of the Europeans and see how these people changed their lifestyles with the coming of the Spaniards and other cultures from other parts of the world. Topics include legends, myths, the Aztec calendar, folk medicine, folk art, folk music, ballads, food, riddles, language, games and other related theses.

HUM 215 Ideas in a Changing Society

1-3 Credits

This course is an interdisciplinary study of the modes of change as manifested in artistic and social movements, in mass culture and in changing life styles.

HYDRAULIC/PNEUMATIC TECHNOLOGY

HPT 100 Introduction/Orientation

3 Credits

This course teaches students the advantages and disadvantages of hydraulics and the safety practice involved when working on a hydraulic system. The proper use of hand tools and special tools required for a hydraulic system is also covered.

HPT 105 Basic Principles of Hydraulics

½ -4 Credits

Prerequisite: HPT 100

This course teaches students the basic laws and principles of fluid power in theoretical and applied terms. Understanding the laws and principles permits the student to use these concepts in practical application and troubleshooting.

HPT 106 Fluids, Sealing Devices, Fluid Conditioners and Conductors

3 Credits

This course teaches students the properties of fluids as well as their types and additives. This course also covers the proper selection of fluid conditioners and the selection of the proper size fluid conductors as well as sealing devices and troubleshooting.

HPT 107 Source of Hydraulic Power

3 Credits

This course instructs students how to disassemble, inspect, repair and test hydraulic pumps and troubleshoot.

HPT 108 Control of Hydraulic Power

3 Credits

This course explores how to repair, adjust and test pressure control valves, directional control valves, flow control valve and flow dividends to meet manufacturer's specifications and troubleshoot.

HPT 109 Hydraulic Motors, Cylinders, Actuators

3 Credits

This course enables students to calculate force output, speed and power input of hydraulic cylinders, select the proper cylinder for an application; calculate hydraulic motor load, torque, displacement, speed, power and efficiency of a gear, piston and vane motors; calculate hydraulic actuator load torque speed, displacement and volumetric displacement; select, test a hydraulic motor, cylinder, actuator as per the instructor's instructions and meet manufacturer's specifications and troubleshoot.

HPT 118 Electro-Hydraulic Servo System

8 Credits

Prerequisites: HPT 100, 105

This course encourages students to achieve finer, more precise control of machinery. The electro-hydraulic servo system provides more accurate control at high speeds than manual or solenoid controls. Students also learn to troubleshoot.

HPT 120 Fluid Power for Mechanical Trades I

3 Credits

This course is an orientation to the field of fluid power. General principles, initial techniques and skill development, troubleshooting and how fluid power relates to the various mechanical trades are presented.

HPT 121 Fluid Power for Mechanical Trades II

3 Credits

This course covers power steering for automobiles and construction equipment, trucks, etc., including pumps, cylinders, valves, hydrostatic transmissions and troubleshooting.

HPT 125 Analyzing Hydraulic Circuits

3 Credits

This course analyzes hydraulic systems, drawings and determines the how and why of the system and the hydraulic components required.

HPT 126 Hydraulic Schematics

3 Credits

This course enables students to plan and draw hydraulic circuits using ASIA symbols and diagrams for various hydraulic systems as designated by the instructor.

HPT 127 Hydrostatic Transmissions

3 Credits

This course teaches students troubleshooting, adjusting and testing of hydrostatic drives.

HPT 200 Basic Pneumatics Safety

3 Credits

This course presents the application of basic physical laws of fluids and mechanics pertaining to fluid power.

HPT 205 Compressors

3 Credits

This course covers the operation and physical characteristics of most positive and nonpositive displacement compressors and procedures for dismantling, inspecting adjusting compressors and troubleshooting.

HPT 206 Primary/Secondary Air Treatment

3 Credits

This course covers the operation and application of primary and secondary air treatment units.

HPT 207 Directional Control and Pressure Control Valves

3 Credits

This course covers the operation, adjustments and repair of directional control valves and pressure control valves and troubleshooting.

HPT 208 Cylinders, Motors, Pneumatics

3 Credits

This course covers the maintenance of pneumatic cylinder motors and principles of operation and construction of pneumatic cylinder motors as well as troubleshooting.

HPT 209 Pneumatic System Design Troubleshooting

3 Credits

This course explores the basic procedure in pneumatic system design and troubleshooting—the use of sequence charts, logical charts and proper symbols and methods used in troubleshooting by using schematic and blueprints.

HPT 215 Pneumatic Logic Controls

3 Credits

This course covers troubleshooting methods whereby control answers can be attained.

HPT 217 Basic Fluidics

3 Credits

This course includes operation of fluidics (nonmoving part), logic devices and their application in problem solving.

HPT 218 Advanced System Components and Circuits

3 Credits

This course covers JIC standards, graphic symbol, schematic diagrams, hydrostatic drives and servo controls for the advanced hydraulic mechanic.

HPT 219 Advanced Troubleshooting—Safety

3 Credits

This course covers various methods of troubleshooting complete hydraulic and pneumatic systems, both in the field and laboratory setting, using portable test equipment and shop test stands.

HPT 220 Advanced Fluid Power, Hydraulic and Pneumatic Maintenance

3 Credits

This course studies hydraulic and pneumatic shop procedures, manufacturer's specifications of hydraulic and pneumatic components and students participate in local shop visits for the advanced mechanic.

HPT 221 Fluid Power Instrumentation

3 Credits

This course presents individual instruments and hardware that measure the variables in a fluid power system.

HPT 225 Air Brake and Anti-Skid Systems

3 Credits

This course studies the fundamentals of the air brake and anti-skid systems and principles of operation.

**INTERNATIONAL TRADE
AND COMMERCE****ITC 105 Introduction to International Business**

3 Credits

This course covers the development of international business and how modern international business is conducted. It also surveys exporting, importing, marketing, finance and government regulations. Opportunities in international management and the techniques used to take advantage of these opportunities are discussed. *(Night and fall session only)*

ITC 106 Exporting and International Transportation

3 Credits

This course discusses the fundamentals of exporting U.S. goods to foreign countries, the basics of export marketing, product planning, pricing and promotion. Students participate in documentation and gain an understanding of international cargo movement, letters of credit, government regulation, documentation, insurance and the method of rating and routing shipments. Guest speakers also deal with current issues. *(Night and fall session only)*

ITC 108 Importing and Customs Regulations

3 Credits

This course covers import operations and procedures. This course also discusses the fundamentals of importing foreign goods to the U.S., the basics of import marketing in general and as a consumer products buyer, product planning and credit. Students participate in documentation and gain an understanding of government regulation. The import process is discussed by guest speakers. *(Night and fall session only)*

ITC 111 Introduction to International Trade Organizations

3 Credits

Prerequisite: ITC 105

This course discusses how international, federal, state, local and trade organizations, along with private service and financial companies, assist both the small and large firm engaged in international trade and commerce. This course looks at the structure and role of these groups and studies cases that illustrate their function. Guest speakers provide current information. *(Night and fall session only)*

ITC 201 International Marketing

3 Credits

This course explores the scope of international marketing and a background in international trade and commerce theory. This course also covers the international marketing environment, international sales and marketing practices, advertising, pricing and distribution. In addition, this course looks at the relationship of international marketing to corporate goals and strategies. *(Night and spring session only)*

ITC 205 Multicultural Dynamics

3 Credits

This course explores the cultural differences facing the manager in international trade and commerce. The course covers the definition of culture, the manager's role as a communicator and agent of change, negotiator, in networking and cross-cultural/economic considerations. *(Night and spring session only)*

ITC 207 International Finance

3 Credits

This course provides an understanding of the applications of finance in international trade and commerce (ITC). This course covers international economics, the history of international financial systems, the major theories of international trade and review of international monetary relations. This course also emphasizes exchange markets, currency fluctuations, foreign exchange risk, hedging and speculation, international banking, Eurodollars, Petro-dollars and their effects in ITC. *(Night and spring session only)*

ITC 249 International Trade and Commerce Management

3 Credits

Prerequisite: ITC 111

This course discusses the management disciplines that make up international trade and commerce. This course includes strategies considered by the board of directors as well as the functions of administration, finance, marketing and manufacturing. Case studies are used to illustrate the theory. *(Night and spring session only)*

LITERATURE**LIT 115 Introduction to Literature**

3 Credits

Prerequisite: ASSET written score of 43+ and a reading score of 41+

This course provides an overview of literature including the short story, poetry and drama. The course emphasizes careful reading, analysis, interpretation as well as understanding of the works and their cultural and historical backgrounds. Critical thinking, discussion and writing about significant works of literature are used as tools to develop discriminating reading skills for lifetime enjoyment.

LIT 125 Study of the Short Story

3 Credits

This course focuses on careful reading and interpretation of the short story as a distinct genre. It examines formal as well as thematic elements of the short story.

LIT 126 Study of Poetry

3 Credits

This course focuses on careful reading and interpretation of various poems representing types and periods of poetry. It examines formal as well as thematic elements of poetry.

LIT 127 Study of the Novel

3 Credits

This course focuses on careful reading and interpretation of selected novels. It examines formal as well as thematic elements of longer fiction.

LIT 201 Masterpieces of Literature I

3 Credits

This course examines significant writings in world literature from the Ancients through the Restoration. It emphasizes careful reading and understanding of the works and their cultural backgrounds.

LIT 202 Masterpieces of Literature II

3 Credits

This course examines significant writings in world literature from the Enlightenment century to the present. It emphasizes careful reading and understanding of the works and their cultural backgrounds.

LIT 211 Survey of American Literature I

3 Credits

This course is an overview of American literature from the Puritans through the nineteenth century Romantics. It explores ideas, historical and social contexts, themes and literary characteristics of works in various genres by major writers.

LIT 212 Survey of American Literature II

3 Credits

This course is an overview of American literature from the mid-nineteenth century to the present. It explores ideas, historical and social contexts, themes and literary characteristics of works in various genres by major writers.

LIT 221 Survey of British Literature I

3 Credits

This course is an overview of British literature from the Anglo-Saxon period through the 17th century. It explores ideas, historical and social contexts, themes and literary characteristics of works in various genres by major writers.

LIT 222 Survey of British Literature II

3 Credits

This course is an overview of British literature from the 18th century to the present. It explores ideas, historical and social contexts, themes and literary characteristics of works in various genres by major writers.

LIT 246 The Literature of Woman

3 Credits

Prerequisite: ASSET written score of 43+ and a reading score of 41+

This course examines culturally and historically the techniques/themes in literature by and about women. Woman's issues in various genres are also examined. The course emphasizes careful reading, analysis, interpretation and understanding of the works. Critical thinking, discussion and writing about significant works by and about woman enhances perceptive reading skills and heightens awareness of woman's issues as part of the human condition.

MANAGEMENT

MAN 116 Principles of Supervision

3 Credits

This course studies the principles and techniques of managing and motivating personnel. This course is designed for students who are interested in supervising others or for those presently in supervision. Course content focuses on the human interaction in supervision.

MAN 117 Time Management

1 Credit

This course is intended to provide students with the conceptual knowledge and tools to make better use of their time in the management function.

MAN 120 Office Management

3 Credits

This course emphasizes the functions of the office. This course includes office organization, work in the office, office layout, equipment and supplies procurement and control, work flow, forms design, record storage and retrieval systems, personnel administration and problems and government control. *(Spring only)*

MAN 200 Human Resources Management

3 Credits

This course presents the methods and techniques of personnel administration. It emphasizes the study of recruiting, interviewing, selecting, placement, training and evaluating. Discussions include the topics of job descriptions orientation, remuneration, promotion and transfers, benefits, grievances and union-management relations. *(Night only in fall; day only in spring)*

MAN 203 Contemporary Issues in Management

2 Credits

This course focuses upon current trends and issues facing persons in managerial roles. Specific issues discussed are determined at the first class meeting, based on the needs of the class members.

MAN 205 Small Business Management

3 Credits

This course studies the importance of the small business, its problem status and requirements for success. It focuses on the fundamentals basic to small business operations while recognizing variations in application suited to particular needs. Specific management problems are considered on an individual basis. *(Night and spring session only)*

MAN 209 Management Seminar

1-4 Credits

Prerequisite: Permission of instructor

This course offers: (1) special coverage of areas of current topical interest, (2) experimental coverage of potential new units or courses and (3) program integrating effort via seminar and simulation techniques.

MAN 210 Cost Effective MRO Buying

3 Credits

This course enables students to understand what constitutes MRO (Maintenance, Repair and Operating) supplies and proper techniques for buying such. Key practices that determine successful MRO purchasing are explored. *(Fall only)*

MAN 211 Inventory Management

3 Credits

This course presents key practices that determine successful inventory management, as well as the principles of inventory management. These principles include purpose and function of inventory, classes of inventory, analysis of inventory, types of control systems, just-in-time stockless buying, order point and order quantity determination, receiving and stores management. *(Fall only)*

MAN 212 Negotiation and Conflict Resolution

3 Credits

This course presents proper techniques in negotiation and conflict resolution. Key practices that determine successful negotiation are explored. This course covers principles of conflict resolution including business policies, accepted business practices, contracts, purchases, labor union contracts, pay raises and starting salaries. *(Spring only)*

MAN 215 Organizational Behavior

3 Credits

This course provides students with an understanding of the way people behave in business organizations and how that behavior can be influenced. This course shows students how to apply organizational theory to business situations and how new techniques in leadership, supervision, participative management, performance appraisal, quality of work life and management by objectives increase productivity. As part of the course, students may prepare an organizational program for a local business. *(Fall only)*

MAN 216 Employee Recruiting and Training

3 Credits

This course studies effective recruiting and employee selection and training techniques. This course emphasizes staff planning, equal employment opportunity and affirmative action, interviewing and testing. It also covers training needs assessment, designing training programs, skills development and orientation programs. Students learn train-the-trainer techniques and methods of assuring the transfer of learning. Students may conduct a recruiting, selection or training project for a local business. *(Fall only)*

MAN 217 Compensation and Employee Benefits Management

3 Credits

This course explores current theory and research related to managing employee compensation and benefits, including new developments as well as established approaches to compensation and benefits decisions. Students may perform a salary survey or evaluate an employee system for a local company as a course project. *(Spring only)*

MAN 218 Ethics and Successful Business

3 Credits

This course introduces basic concepts for analyzing moral issues in business and how these concepts apply to specific problems, including pollution control, resource depletion, affirmative action and equal pay. Problems and issues are explained in actual cases to determine how those decisions affect others. Ethics is interpreted not only from a "gut reaction," but also from the rule of reason. This course addresses the issue, "Is good ethics good business?" (*Night and spring sessions only; odd-numbered years only*)

MAN 219 Labor-Management Relations

3 Credits

This course explores the relationship between management and labor and the various limitations imposed on the way power is exercised. This course includes techniques to improve employee management relations in union/non-union environments and practical experience in handling labor relation problems. Students prepare either a management or a union bargaining strategy and present it for critical review. (*Spring only*)

MAN 225 Managerial Finance

3 Credits

Prerequisites: ACC 121, 122; ECO 201

This course involves concepts and techniques for utilization of financial accounting information for managerial planning, decision making and control. It also includes concepts and techniques for funds flow management and for short-, intermediate- and long-term financing considerations. (*Fall only*)

MAN 226 Principles of Management

3 Credits

This course is a survey of the principles of management. The course emphasizes the primary functions of planning organization, staffing, directing and controlling with a balance between the behavioral and operational approach.

MAN 239 Business Policies

3 Credits

Prerequisite: Permission of instructor

This course studies policy formulation and its usage for effective overall management control. It focuses on integrated managerial coordination of marketing, production, finance, accounting, administration, etc. (*Spring only*)

MAN 240 Management Information Systems

3 Credits

Prerequisites: ACC 121; BUS 115, 216; CIS 118; ECO 201; MAN 225, 226, 239

This capstone course utilizes seminar and simulation techniques in management information systems. Management concepts and principles are applied to both situational and comprehensive case problems. (*Spring only*)

MARKETING**MAR 108 Principles of Salesmanship**

3 Credits

This course enables students to understand and develop proper sales techniques. This course covers the role of selling in the marketing process, consumer behavioral consideration in the buying-selling process, sales techniques and sales management. (*Night only in fall; day only in spring*)

MAR 109 Advertising and Promotion

3 Credits

This course enables students to understand and apply techniques in advertising and promotion. The role of advertising and sales promotion in our economy, the kinds and purposes of different media, consumer behavioral implications and student practice and application in campaign programming are included. (*Day only; spring only*)

MAR 115 Visual Merchandising

3 Credits

This course covers principles and arrangement of merchandise displays, store design and layout, promotional signer, store fixtures and customer service. This course enables students to understand the various areas of visual merchandising and also provides an opportunity for practical application of the principles covered. (*Day only; spring only*)

MAR 207 Marketing Seminar

1-3 Credits

Prerequisite: MAR 216 or equivalent or permission of instructor
This is an advanced course in marketing, enabling students to apply marketing strategies to the development of both individual and group projects.

MAR 214 Wholesaling and Distribution

3 Credits

This course enables students to understand and develop strategies in wholesaling and physical distribution. This course deals with the function, purposes and operation of the various wholesale middlemen; warehouse and transportation policies; and procedures and documentation of goods and services. (*Night only; fall only*)

MAR 215 Retail Management

3 Credits

This course acquaints students with the fundamentals of and develop strategies for retail store management. This course covers retail organization and management, store location, buying and handling merchandise, pricing merchandise and promotional efforts. (*Day only; spring only*)

MAR 216 Principles of Marketing

3 Credits

This course analyzes theoretical marketing processes and the strategies of product development, pricing promotion and distribution and their applications to businesses and the individual consumer.

MAR 217 Principles of Purchasing

3 Credits

This course presents the objectives and methodology of industrial, institutional and governmental purchasing agents and buyers. It emphasizes value analysis, product quality control, maintenance of operating efficiency, materials management and analysis of competitive price quotations. (*Night only; fall only*)

MAR 218 Sales Management

3 Credits

Prerequisite: MAR 108

This course enables students to gain an understanding of and apply techniques currently used in sales management. This course covers the formulation of a strategic sales program, the implementation of the sales program and the evaluation and control of sales force performance. This course also focuses upon environmental variables, role perceptions, aptitude, skill levels and motivation level. (*Night only; spring only; odd-numbered years only*)

MAR 219 Public Relations Management

3 Credits

This course enables students to gain an understanding of and apply techniques currently used in public relations management. This course covers the nature of public relations, principles of public relations management and managing of communication between an organization and its publics. (*Night only; spring only*)

MATHEMATICS

MAT Mathematics Lab Courses

1 Credit per course

All Mathematics lecture courses have a one (1) credit hour LAB accompanying them. Students attending lecture courses who need additional instructional assistance from the Math Lab staff in completing homework assignments are required to register for the accompanying LAB section to their course. Students enrolled in self-paced mathematics courses should not register for LAB course sections. This one credit hour LAB per course will not apply toward any degree.

MAT 056 Introduction to Mathematics: Pre-Algebra

3 Credits

This course is for students who need a comprehensive review of arithmetic. Topics include the whole numbers, fractions and decimals; percentages; proportion; operations with signed numbers; and equations.

MAT 100 Introductory Algebra

3 Credits

Prerequisite: MAT 056 or equivalent

This is a first course in algebra intended for students with little or no algebra background or for students who need a review. Topics include manipulation of algebraic expressions, solving first-degree equations in one and two variables, factoring, solving fractional equations, graphing and verbal problem solving.

MAT 102 General Mathematics for College Students

1-5 Credits

Prerequisite: MAT 056 or permission of instructor

This course provides students with the basics of the mathematical areas of arithmetic review, calculators, measurement, algebra, geometry and trigonometry.

MAT 103 Introduction to Geometry

3 Credits

Prerequisite: MAT 100 or equivalent

This course is a continuation of MAT 100. Topics include logic, names and properties of geometric figures and basic trigonometry. Skills from MAT 100 are applied.

MAT 105 Intermediate Algebra

4 Credits

Prerequisite: MAT 100 or equivalent

This course is intended for students who have recently completed one year of high school algebra or MAT 100. Topics include the set of real numbers, extensive treatment of exponents, radicals, first- and second-degree equations in one variable, functions, linear systems, quadratic equations and graphs.

MAT 115 Applied Occupational Mathematics

3 Credits

Prerequisite: ASSET numerical score of 40+

This course is designed for vocational/occupational students. The course provides students with practical mathematical applications that they will encounter in their fields. The course emphasizes careful reading, analyzing and problem-solving specific to individual students' goals. Topics include whole numbers, fractions, decimals, ratio and proportions, percents, measurement, formulas and right angle trigonometry. It is a calculator-based modular course.

MAT 121 College Algebra

4 Credits

Prerequisite: MAT 105 or equivalent

This course includes a brief review of intermediate algebra, equations and inequalities, functions and their graphs, exponential and logarithmic functions, linear and non-linear systems, graphing of the conic sections, introduction to sequences and series, permutations and combinations, the binomial theorem and theory of equations.

MAT 122 College Trigonometry

3 Credits

Prerequisite: MAT 121 or permission of instructor

This is a traditional prerequisite course to the calculus sequence. Topics include trigonometric functions (with graphs and inverse functions), identities and equations, solutions of triangles, complex numbers and other topics as time permits.

MAT 123 Pre-Calculus

5 Credits

Prerequisite: MAT 105 with a minimum grade of "B" or permission of instructor.

This is a fast-paced review course in college algebra and college trigonometry intended for students planning to take the calculus sequence. Topics include a review of algebraic manipulations; polynomial, exponential, logarithmic, inverse and trigonometric functions and their graphs; trigonometric identities and equations, conic sections and complex numbers. Students who require a slower-paced approach are encouraged to take MAT 121 and MAT 122. (*A graphing calculator is required.*)

MAT 124 Finite Mathematics

4 Credits

Prerequisite: MAT 105 or permission of instructor

This course is primarily for business, life science or social science majors. Topics include functions, matrix algebra, linear programming and an introduction to probability and counting techniques. Emphasis is on applications. This course may include other topics such as statistics when time permits.

MAT 125 Survey of Calculus

4 Credits

Prerequisite: MAT 121 or MAT 124 or permission of instructor
This course is for business, life science and/or social science majors. It includes derivatives, integrals and their applications, with attention restricted to algebraic, exponential and logarithmic functions.

MAT 135 Introduction to Statistics

3 Credits

Prerequisite: MAT 105 or equivalent
This course includes data presentation and summarization, introduction to probability concepts and distributions, statistical inference-estimation, hypothesis testing, comparison of populations, correlation and regression.

MAT 201 Calculus I

5 Credits

Prerequisites: MAT 121 and MAT 122 or equivalents
This course introduces single variable calculus and analytic geometry. It includes limits, continuity, derivatives and applications of derivatives, as well as indefinite and definite integrals and some applications.

MAT 202 Calculus II

5 Credits

Prerequisite: MAT 201 or permission of instructor
This course is a continuation of single variable calculus and includes techniques of integration, polar coordinates, analytic geometry, improper integrals and infinite series.

MAT 203 Calculus III

4 Credits

Prerequisite: MAT 202
This course completes the traditional subject matter of The Calculus. Topics include vectors, vector-valued functions and multi-variable calculus (including partial derivatives, multiple integrals, line integrals and applications).

MAT 250 Topics in Mathematics

2 Credits

Prerequisite: MAT 122 or MAT 123
This course includes topics selected to improve mathematical skills and motivate interest, which are not in the standard curriculum. Examples of such topics are mental arithmetic, continued fractions, cubic and quartic equations and actuarial applications.

MAT 255 Linear Algebra

3 Credits

Prerequisite: MAT 202 or permission of instructor
This course includes an introduction to the theory of vector spaces, linear transformations, matrix representations, eigenvalues and eigenvectors. (*Offered spring semester only.*)

MAT 265 Differential Equations

3 Credits

Prerequisite: MAT 203 or permission of instructor
The primary emphases in this course are on techniques of problem solving and applications. Topics include first, second and higher order differential equations, series methods, approximations, systems of differential equations and Laplace transforms.

MULTIMEDIA TECHNOLOGY

(See also *Film/Video Technology, Graphics and Animations Technology and Production and Design Technology.*)

MTC 100 Multimedia Equipment and Technology

3 Credits

Prerequisite: CIS 113

This course introduces the types of equipment and technical considerations used in multimedia productions. It focuses on current types of equipment such as scanners, printers, digital cameras and computers. New types of add-on boards to enhance multimedia production and other peripheral devices are also explored. Students gain hands-on experience in how the technology is utilized for input and output in production and design projects.

MTC 101 Introduction to Design and Graphics

3 Credits

Prerequisite: CIS 113

This course explores the use of tools, computer graphics techniques, procedures and presentations to produce professional graphic designs. Students use creative thinking to solve communication and design problems.

MTC 201 Multimedia Production and Management

3 Credits

Prerequisites: CIS 113

This course explores the use of tools, computer graphics techniques, procedures and presentations to produce professional graphic designs. Students use creative thinking to solve communication and design problems.

MUSIC**MUS 100 Chorus**

1 Credit

This course is open to students at all vocal levels. Concerts are performed every session and are designed to include a wide variety of music.

MUS 106 Sound Design for Multimedia

3 Credits

This course explores the use of sound in multimedia productions. It focuses on how sound can enhance interactive productions and improve computer presentations. Use of the Macintosh computer as a full audio studio is studied.

MUS 111 Beginning Theory I

3 Credits

This course is the equivalent to the Rudiments of Music course and lab offered by every university music school. The science and art of music is emphasized by developing the tools used in notating, creating and listening to music. Topics include basic scale forms, keys, basic chord forms and lead sheet symbols, chord progressions and melody harmonization. *Ability to read music is not required.*

MUS 112 Beginning Music Theory II

3 Credits

Prerequisite: MUS 111 or permission of the instructor
This course and lab is designed to resemble the Music Theory I course offered for university music school majors. A continuation of MUS 111, students learn to further integrate theory. Two-, three- and four-part writing is analyzed to better understand music by studying examples and creating it.

MUS 105 Introduction to Music on the Computer

3 Credits

This course explores the history and modern application of electronic music for the Macintosh and IBM personal computers. Recording from basic music software and setting up a home studio are explored. The course is conducted in the Macintosh laboratory, but utilizes products which function exactly the same in the IBM PC environment. *No background in music, electronics or computers is necessary.*

MUS 120 Music Appreciation

3 Credits

This course covers the basic materials of music, musical forms, media, genres and musical periods. It emphasizes the development of tools for intelligent listening and appreciation.

MUS 121 Introduction to Music History I

3 Credits

This course studies various periods of music history with regard to the composers, aesthetics, forms and genres of each period. Music from the Middle Ages through the Classical period is discussed.

MUS 122 Introduction to Music History II

3 Credits

This course is a continuation of MUS 121 with a review of the elements of music and a study of music from the early Romantic period to the present.

MUS 164 History of Jazz

3 Credits

This course reviews the history of jazz in America and provides basic listening skills for the understanding and appreciation of jazz music.

NURSING**NUR 108 Nurse Aide/Home Health Aide**

5 Credits

This course prepares students to assist the client in a hospital, home or long-term care facility setting. Basic nursing procedures, personal care and assisting the patient and family with general household activities is covered. The responsibilities involved in working with persons of all ages in wellness and illness is also discussed. *After successful completion, students are eligible to take the Colorado Board of Nursing examination to become certified*

NUR 200 Basic Nutrition

3 Credits

This course covers information about the nutrients needed by the body throughout one's life span for vigor and quality of life. This course is a requirement for basic nursing programs.

NUR 220 Ethics in Health Care

3 Credits

This course explores the development of ethics in Western tradition and principles as applied to present day health care. The key emphasis is the application of ethics as a tool in analytical thought.

NUR 250 Ethics in Health Care

3 Credits

This course covers the development of ethics in Western tradition and applies principles to present day health care. Utilizing ethics to clarify objectives in health care and the application of ethics as tools in analytical thought are discussed.

OCCUPATIONAL SAFETY TECHNOLOGY*(In cooperation with Trinidad State Junior College)***OSH 110 Fire Protection**

2 Credits

This course enables students to recognize possible fire sources and emergency procedures in the event of a fire. This course includes history of fires, types of extinguishing agents and detecting devices. National Fire Protection and Occupational Safety and Health Standards is stressed.

OSH 111 Fire Analysis

2 Credits

Prerequisite: OSH 110

This course offers an in-depth study of fires and the construction techniques of eliminating fires. Topics include construction techniques, extinguishing systems and detecting systems.

OSH 130 Construction Standards

5 Credits

This course provides the knowledge needed to implement an effective safety program for any size/type of construction site.

OSH 131 General Industry Standards

5 Credits

This course provides students with knowledge to implement an effective safety program for the general industry.

OSH 196 Safety Program Planning and Administration

3 Credits

This course explores practical application methods used in developing and administering, a safety and health/accident prevention plan. This plan meets the current Occupational Safety and Health Administrations standards.

OSH 200 Hazardous Material Control

2 Credits

This course provides information on chemical right-to-know awareness, chemical identification, chemical labeling and chemical material safety data sheets.

OSH 201 Workers Compensation Cost Containment

2 Credits

This course of Colorado Insurance Regulation 91-5, and explains how to design and implement a "Certified Risk Management Program". Students receive reference material to aid them in designing a certified program.

OSH 202 Accident Prevention

2 Credits

This course explores the hazards and design elimination techniques through knowledge of accident prevention controls.

OSH 203 Ergonomics: Managing Task Stress

3 Credits

This course familiarizes students with the occupational safety major with the concepts and applications of current ergonomic theory. Discussions include work physiology, engineering anthropometry, biomechanics, work station design and controls. Students learn to measure successful application of ergonomic design through improved productivity, efficiency, safety and worker acceptance of resultant system design.

OSH 204 Environmental Regulatory Framework

1 Credit

This course reviews regulations which affect the environment. Regulations discussed are E.P.A.; S.A.R.A.; C.E.R.C.L.A.; and R.C.R.A. OSHA's role in the control of potential environmental mishaps is also provided.

OSH 207 Industrial Hygiene

3 Credits

This course introduces the general concepts of industrial hygiene. Topics include routes of exposure, chemical, physical and biological hazards, ventilation, noise and instrumentation. Identification, evaluation and control of industrial health hazards is stressed.

OSH 208 Trenching

1 Credit

This course presents detailed information on the safety aspects of trenching and excavation. OSHA standards are stressed. Various types of sloping and shoring methods are covered.

OSH 209 Grain Handling

1 Credit

This course familiarizes students with the safety aspects of grain handling. A discussion of grain dust explosibility is included along with a review of OSHA enforcement procedures.

OSH 210 Drum Handling

1 Credit

This course explores practical applications used in the manual lifting and handling of drums. A description of chemical hazards is also covered.

OSH 230 First Aid

2 Credits

This course covers techniques in handling accidents and illnesses. Basic first aid techniques are taught to train an individual to give emergency treatment for on-the-job injuries.

OSH 240 Case Study Evaluation

5 Credits

This course teaches students OSHA's interpretations of regulations for the general industry and the construction industry. Individual cases are analyzed by each student.

OSH 250 Safety Training Methods

2 Credits

This course introduces current safety training methods. Organization, preparations and delivery are stressed.

OSH 261 Independent Study

3 Credits

This course provides an opportunity for students to work on Occupational Safety related research projects. Research projects vary and are assigned by the advisor based on student need.

OSH 290 Direct In-Service Internship

12-18 Credits

This course is designed for employees working in a safety and/or health department who wish to further their education in occupational safety. Students may substitute internship credit for appropriate occupational safety courses required for the A.A.S. degree or certificate. *Appropriate credit is determined by an advisor.*

OSH 296 Pre-Service Internship

5-12 Credits

This course is for students who do not have prior industrial experience in safety and wish to expand their understanding and knowledge of industrial processes and problems. Students may substitute internship credit for appropriate occupational safety courses required for the A.A.S. degree. *Appropriate credit is determined by an advisor.*

OFFICE CAREERS*(See Business Technology.)***PARK RANGER TECHNOLOGY****PAR 102 Introduction to Park Ranger Technology**

3 Credits

This introductory course covers the development of public lands in the United States, the various agencies controlling those lands, multi-use doctrine, wilderness, public services provided in parks and the various roles of the park ranger in different settings. Discussed are career planning and park ranger responsibilities, such as law enforcement, natural resource management, protection and interpretation, cultural resource interpretation, visitor services, emergency management and training.

PAR 127 Wilderness First Responder

3 Credits

This course is a first-responder emergency medical course for wilderness responders. The course will meet national standards for wilderness medicine and State of Colorado Standards for First Responder.

PAR 203 Natural Resource Management

3 Credits

This course introduces various scientific disciplines and complex issues associated with natural resource management. Career planning, Ecosystem Management, Wildlife Management, Plant Ecology, Agricultural Management, Public Land Acquisition, Cultural Resource Protection, Water and Mineral Resources, Visitor Use, Natural Resource Law Enforcement, and Public Safety are covered. This course emphasizes the management of natural resources through the management of people.

PAR 205 Resource Interpretation

3 Credits

This is a basic course in natural and cultural resource interpretation. The philosophy, techniques and skills necessary to produce exciting and relevant resource interpretation projects are discussed and practiced. Interpretive plans are discussed in detail as well as various techniques used in the field of resource interpretation and public education. The history and development of environmental education and natural/cultural resource interpretation are discussed. Multi-use conflict solutions via public education and resource interpretation are emphasized.

PAR 230 Natural Resource Law

4 Credits

Prerequisites: POST Law Enforcement Academy

This course is designed to train the Law Enforcement Academy graduate in the elements of law enforcement pertaining to natural resources. The course will cover the Federal and State statutes regarding natural resources, wildlife, fish, sporting and non-game specie laws, off-road travel, stock grazing on public lands, recreational uses of natural resources, mining and multi-use conflict.

PAR 235 Park Ranger Skills Seminar

2 Credits

This is a skills seminar that presents necessary information regarding specialized skills related to the park ranger field. Subjects such as horse handling; fence design, building and repair; vehicle driving; park maintenance; budgeting; and park planning functions are covered. Trail design, construction and repair are also taught. This is a hands-on course so that students can apply their developed skills in the field.

PAR 297 Park Ranger Internship

3 Credits (minimum)

This course gives students valuable field experience necessary for a rational view of the career field, as well as vital networks of people within the field. Students are expected to perform or be an observer in all the areas of responsibility within the park ranger career field. Students need to have a minimum of 135 contact hours for the 3-credit minimum required for the program.

PHILOSOPHY**PHI 111 Introduction to Philosophy**

3 Credits

Prerequisite: College level reading and writing skills
This course introduces significant human questions and emphasizes understanding the meaning and methods of philosophy. It includes the human condition, knowledge, freedom, ethics, religion and the nature of mind.

PHI 112 Ethics

3 Credits

Prerequisite: College level reading and writing skills
This course examines human life, experience and thought in order to discover and develop the principles and values for pursuing a more fulfilled existence. Theories designed to justify ethical judgments are applied to a selection of contemporary personal and social issues.

PHI 113 Logic

3 Credits

Prerequisite: College level reading and writing skills
This course studies effective thinking using language-oriented logic. It provides tools and develops skills for creative and critical thinking. It emphasizes the development of decision-making and problem-solving skills.

PHI 114 Philosophy of Religion

3 Credits

This course is a philosophical introduction to the basic topics in philosophy of religion. The course explores related topics of western religions, including the problem of evil, arguments for and against the existence of God, the nature of faith, problems of religious language and conflicting truth claims in the various religions.

PHI 115 Comparative Religions

3 Credits

Prerequisite: College level reading and writing skills
This course introduces students to the similarities and differences among concepts predominant in the major world religions. A comparison of the sociological and philosophical similarities between major world faiths and the other world faiths is included.

PHI 116 Applied Ethics

3 Credits

This course introduces students to practical reason. Varieties of ethical principles are applied to specific areas of human decision making in order to elucidate the choices and reasons for action. The specific areas of analysis that the course typically addresses are ethics of life and death, business ethics, ethics of war and peace and sexual ethics.

PHI 125 Critical Thinking

3 Credits

This course provides tools and develops skills for creative and critical thinking. It will cover the uses of language, the art of definitions and explanations, the nature of argumentation and debate, the looking for the presuppositions and the preparations of outlines and speeches.

PHYSICAL EDUCATION

** All the PHE courses pertaining to mountain-oriented recreation have one or more field trips. Most field trips are single-day trips scheduled on a weekend. Students should check with the PHE Department to see which courses may have weekday field trips or courses which require overnight camping.*

PHE 100 Aerobic Conditioning/Fitness Education Center

1 Credit

This course is designed for individuals interested in improving total fitness via an aerobic-based conditioning program. This course includes an individual fitness evaluation, computerized analysis of results and a prescribed exercise program. Conditioning is done on a circuit training system, utilizing a series of weight machines and aerobic stations.

PHE 146 Scuba Diving

1 Credit

This course covers basic instruction and skills in scuba diving. Aqua charges are required for participants in this course and individuals must furnish their own scuba diving equipment or rent equipment.

PHE 150 Aerobic Conditioning II/Fitness Education Center

1 Credit

Prerequisite: PHE 100
This advanced course in aerobic conditioning is designed for individuals interested in attaining a high level of total fitness. This course includes a continuation of an individualized fitness program. Weight training equipment, bicycle ergometers, a rowing machine, a treadmill and other aerobic equipment are used to elicit improvements in physical fitness.

PHE 151 Beginning Tennis

1 Credit

This course includes selection and the buying of equipment to best fit the student's needs. The fundamental skills of forehand, backhand, serve and net volley are covered. Scoring, rules and court etiquette are introduced in both the singles and doubles game.

PHE 152 Intermediate Tennis

1 Credit

This course reviews all basic strokes: forehand, backhand, serve and volley at the net. More emphasis is placed on foot-work, playing time and strategy for both singles and doubles. The lob, half-court volley and overhead smash are introduced.

PHE 170 Cross Country Skiing

2 Credits

This course emphasizes equipment, skills and techniques for cross country skiing. It includes winter condition dangers and places to ski.

PHE 176 Bicycle Camping

2 Credits

This course covers the fundamentals of using the bicycle for camping recreation. It includes equipment, clothing, repair procedures and camping techniques.

PHE 177 Guide to Hiking/Climbing

1 Credit

This course provides wilderness sites and their specific location in Colorado where one can go to hike or camp. It includes selected wilderness sites in other western states. Information is included about how to use guide books and selected maps.

PHE 180 Basic Mountaineering I*

3 Credits

This course emphasizes the fundamentals of mountaineering up to a 4th class skill level. It will include belaying, rappelling, clothing, equipment and safety values.

PHE 181 Basic Rock Climbing*

2 Credits

This course emphasizes fundamentals of rock climbing up to low level 5th class climbing. It includes hand and foot holds, belaying, rappelling, clothing, equipment, top roped climbing and safety values.

PHE 182 Intermediate Rock Climbing*

2 Credits

This course is a continuation of PHE 181 and emphasizes fundamentals of 5th class climbing, placement of protection and dynamic belaying. It leads climbs up to a mid 5th class skill level.

PHE 183 Basic Ice Climbing*

2 Credits

This course emphasizes fundamentals of climbing high angle ice. It includes clothing, equipment, ice climbing techniques and safety values.

PHE 185 Snow and Glacier Climbing*

3 Credits

This course emphasizes the use of ice axe, crampons and roped climbing on snow. It includes route finding and crevasse rescue.

PHE 186 Orienteering*

2 Credits

This course emphasizes competitive cross country walking and running using map and compass. It includes techniques, rules and field trips.

PHE 187 Map and Compass for the Outdoorsperson*

3 Credits

This course covers the reading of highway, forest service and topographic maps which include symbols, legends, border information and contour lines. It includes the usage of a magnetic compass in an outdoor environment and functions that plot a course on maps. Supplemental navigational skills are included.

PHE 188 Backpacking*

2 Credits

This course emphasizes the fundamentals of backpacking. It includes clothing, equipment, places to backpack and a field trip.

PHE 189 Climbing/Backpacking Expedition*

3 Credits

This course is a group expedition covering seven to ten days backpacking, hiking and climbing in remote North American regions. It includes the rationale for organizing and conducting wilderness trips.

PHE 190 Snowshoeing*

1 Credit

This course emphasizes basic skills, equipment, clothing and techniques of snowshoeing. It includes the objective dangers involved with winter recreation.

PHE 200 Aerobic Conditioning III/Fitness Education Center

1 Credit

Prerequisites: PHE 100, 150

This advanced course in aerobic conditioning is designed for individuals interested in maintaining a high level of total body fitness. This course includes further improvement of an individualized fitness program. This is accomplished by continuing to increase the intensity of the work-out and the number of circuits completed. Upper and lower body weight training equipment, bicycle ergometers, a rowing machine, treadmills, Universal Fitstepper and other aerobic equipment are used to elicit further improvements in physical fitness.

PHE 218 Outdoor Recreation Leadership

2 Credits

This course studies the history, development and trends of outdoor recreation, conservation and organized camping. Emphasis is on large group camping, field trips and the development of outdoor leadership skills.

PHE 220 Wilderness Equipment and Facilities*

3 Credits

This course is designed to acquaint and familiarize the student with wilderness equipment and program facilities. It includes a field trip.

PHE 221 Mountaineering Teaching Concepts*

3 Credits

This course covers planning and methods required to teach mountaineering skills. Students give lectures and conduct field trips.

PHE 222 Basic Search and Rescue*

3 Credits

This course covers the basic fundamentals required for basic search and rescue in a wilderness environment. It includes tracking techniques and field trips.

PHE 223 Backpack Cooking*

1 Credit

This course covers menu planning and nutritional requirements for wilderness camping. It will include cooking a backpack meal.

PHE 224 Colorado's Fourteeners*

2 Credits

This course presents an historical look into the naming and climbing of Colorado's 14,000-foot mountain peaks. It includes information on the current routes to ascend the peaks.

PHE 225 Routefinding*

1 Credit

This course covers the concepts of finding the optimum path when hiking rough terrain or climbing a mountain. It includes a review of standard map and compass techniques.

PHE 226 Wilderness Dangers*

1 Credit

This course provides familiarization of the objective and subjective dangers of the wilderness. *This course includes a field trip.*

PHE 227 Basic Mountaineering II*

3 Credits

This course is a continuation of PHE 180 and/or PHE 185 and it involves climbing a peak of moderate difficulty involving a time span of two to four days.

PHE 228 Wilderness Ethics

2 Credits

This course emphasizes the motivation, aesthetics and ethics of mountaineering. It includes wilderness conservation principles.

PHE 229 Wilderness Survival*

3 Credits

This course emphasizes the physiological and psychological principles of survival. Survival equipment, wilderness improvising techniques and wilderness dangers are included.

PHE 230 Mountain Photography*

3 Credits

This course presents the fundamentals of composition and lighting for mountain photography. It includes a slide photo contest and critique sessions.

PHE 250 Aerobic Conditioning IV/Fitness Education Center

1 Credit

Prerequisites: PHE 100, 150, 200

This advanced course in aerobic conditioning is designed for individuals interested in maintaining a high level of total body fitness. This course includes continued improvement of an individualized fitness program. This is accomplished by continuing to increase the intensity of the work-out and by varying the equipment used to reach fitness goals. Upper and lower body, as well as specialized weight training equipment, bicycle ergometers, a rowing machine, treadmills, NordicTrack®, Universal Fitstepper, Aerobicycles and other aerobic equipment are used to elicit continued improvements in physical fitness.

PHE 259 Wilderness Survival II*

3 Credits

This course is an extension of PHE 229 Wilderness Survival and is an extended wilderness field exercise in wilderness survival concepts and improvising.

PHYSICS**PHY 105 Conceptual Physics**

4 Credits

This course studies mechanics, heat, properties of matter, electricity and magnetism, light and modern physics. The course includes laboratory.

PHY 111 Physics: Algebra-based I

5 Credits

Prerequisite: MAT 121

This course studies mechanics and heat. The course includes laboratory.

PHY 112 Physics: Algebra-based II

5 Credits

Prerequisite: PHY 111 or permission of instructor

This course enables students to learn about electricity and magnetism, light and modern physics. The course includes laboratory.

PHY 211 Physics: Calculus-based I

5 Credits

Prerequisite: MAT 201

This course explores mechanics, heat and wave motion. The course includes laboratory.

PHY 212 Physics: Calculus-based II

5 Credits

Prerequisite: PHY 211 or permission of instructor

This course covers wave motion, electricity and magnetism and light. The course includes laboratory.

PLUMBING*(See Construction Technology.)*

POLITICAL SCIENCE**POS 105 Introduction to Political Science**

3 Credits

This course is a survey of the discipline of political science, including political philosophy and ideology, democratic and nondemocratic governments and processes and international relations.

POS 111 American Government

3 Credits

This course gives students a background in the U.S. Constitution; the philosophy of American government; general principles of the Constitution; federalism; civil liberties; public opinion and citizen participation; political parties, interest groups and the electoral process; and the structure and functions of the national government.

POS 125 American State and Local Government

3 Credits

This course studies the structure and function of state, county and municipal governments including their relations with each other and with the national government. Colorado government and politics are emphasized.

POS 215 Current Political Issues

1-3 Credits

This course is an in-depth analysis of critical issues in political science. Topics are determined each session.

PRECISION JOINING TECHNOLOGY

PJT 201 Joining Metallurgy

3 Credits

Prerequisites: CHE 111; WFT 108 or permission of instructor
This course introduces the metallurgy of welding and brazing. It describes metallurgical microstructures and solidification modes and relates them to welding variables, alloy composition, cooling rate and pre- and post-weld heat treatment. These metallurgical concepts are related to welding practices, mechanical properties and defect formation. The weldability of most of the common alloys are studied, including filler metal selection.

PJT 202 Process Variable Effects in Arc Welding

3 Credits

Prerequisites: MAT 121; PHY 105 or 111; WFT 207 or permission of instructor
This course identifies the main arc welding variables and the influence of these on weldment properties and weld geometry. The GTAW, GMAW and PAW processes are studied, from the fundamentals of each process to applications in production. Students learn how to make sensible decisions about arc welding variable changes during procedure development and production troubleshooting. Process control strategies for production applications and process improvements are included.

PJT 203 Process Variable Effects in Beam Welding

3 Credits

Prerequisites: MAT 121; PHY 105 or 111; WFT 207 or permission of instructor
This course identifies the main beam welding variables and the influence of these on weldment properties and weld geometry. The electron beam and laser beam welding processes are studied, from the fundamentals of each process to production applications. Students learn how to make sensible decisions about beam welding variable changes during procedure development and production troubleshooting. Process control strategies for production applications and process improvements are included.

PJT 204 Resistance and Nonfusion Joining Processes

3 Credits

Prerequisite: WFT 108 or permission of instructor
This course describes the fundamentals of nonfusion joining processes. This course covers resistance welding, solid-state welding, brazing and soldering, as well as other nonfusion joining processes. Each process is studied, beginning with the fundamentals and a basic process description, through interactions of the process variables, to applications of each process. Students learn about advantages, limitations and appropriate joint designs for each process.

PJT 205 Weldment Design and Properties for Structural Members

3 Credits

Prerequisites: MAT 121; WFT 210 or permission of instructor
This course describes the fundamentals of the mechanical behavior of welded structures. This course begins with a historical study of metallurgical failures, which prompted development of fracture mechanics and fracture control planning. This course presents general concepts in basic mechanics of materials, tensile loading, fracture mechanics, fatigue and creep. These are studied as they relate to weld design and properties. This course also culminates with the formulation of fracture control plans for welded structures.

PJT 206 Weld Defects—Formation, Detection and Control

3 Credits

Prerequisite: WFT 210 or permission of instructor
This course introduces students to defects which form during welding or brazing. Students learn how defects form in each of the three major categories: process- or procedure-related, metallurgical and design-related. Further study includes which defects are associated with specific welding processes and methods to control the defects by reducing or eliminating them. Defect detection and identification methods are introduced which include which methods are best for detecting specific defects.

PJT 207 Joining Procedure Development and Quality Control

3 Credits

Prerequisites: MAT 135; WFT 207 or permission of instructor
This course provides students with the skills to develop appropriate and optimum joining process parameters to optimize weld quality. This course begins with code and standard requirements for procedure qualification. Experimental design methods are presented to study the effects of joining variables on the resultant weld quality and properties. Scientific and statistical approaches are used to show the importance of proper recording of data, appropriate analysis and result presentation, control charting and statistical process control methods.

PJT 208 Production Problem Analysis

3 Credits

Prerequisites: ENG 121; MAT 135; WFT 207 or permission of the instructor
This course provides a foundation for applying the fundamental concepts of advanced welding and automated joining to solve welding production problems. Students learn systematic problem analysis methods for resolving welding production problems. Statistical problem solving and process control tools are covered, with emphasis on how these can be used in analyzing and solving welding problems. The importance of reporting and communications skills in the problem solving cycle are also covered.

PJT 209 Automated Welding Controls and Measurements
3 Credits

Prerequisites: EDT 140 or EIC 218; MAT 121; WFT 207 or permission of instructor

This course presents advanced systems techniques to control and monitor welding and brazing processes. It begins with a basic description of power sources for various joining processes and concludes with a study of the sensory systems for measuring welding variables. Advanced sensing and control systems are studied with an emphasis on application and improving present production welding processes. Metrology and calibration of joining systems are also covered.

PJT 250 Automated Arc and Beam Welding Lab I
2 Credits

Prerequisite: WFT 207 or permission of instructor

This course presents automated arc welding and beam welding processes on a fundamental, equipment-based level. The arc welding processes, GTAW, GMAW and PAW and the beam welding processes, electron beam and laser beam, are covered, both in the classroom and in the laboratory. Arc and beam welding systems are used, from manual and semi-automated machines to mechanized and fully automated systems. The fundamentals of the processes are studied, including arc and beam physics, current flow and polarity and filler metal addition methods. Finally, the capabilities, limitations and advantages of each process are covered.

PJT 251 Automated Arc Welding Lab II
2 Credits

Prerequisites: ENG 121; PJT 250 or permission of instructor

This course covers automated arc welding systems beyond the basic process and equipment. Students evaluate the effects of welding variable changes on simple part geometries with GTAW, GMAW and PAW systems. Equipment used includes basic manual and semi-automated machines to mechanized and fully automated systems. Robotic GMAW, fully automated feedback control GTAW and synergic GTAW welding systems are used and studied. Fixturing, control systems, data acquisition systems and sensory equipment are also utilized.

PJT 252 Beam Welding Lab II
2 Credits

Prerequisites: ENG 121; MAT 121; PJT 250 or permission of instructor

This course introduces the beam welding processes beyond the basic process and equipment operations. Students study the effects of welding variable changes for simple part geometries on an electron beam system and a laser beam system. Topics include the effects of beam power, beam focus, travel speed and the other welding variables on weld geometry in electron and laser beam welding.

PRODUCTION AND DESIGN TECHNOLOGY

PDT 150 Computer Presentation Graphics
3 Credits

Prerequisite: GAT 125

This course enables students to produce multi-image shows including illustrations, charts, graphs and photography slides for presentation support. Students learn to sequence slides according to a script and create appropriate illustrative graphics.

PDT 205 Computer Art Studio
3 Credits

Prerequisite: GAT 120 or GAT 106

This course teaches students how to work with illustration and paint software on the Macintosh computer. Color and relationships, repeat patterns, animation and digitization are among the topics covered in the course as students explore the possibilities of computers in visual art. Assigned projects cover a wide range of visual approaches.

PDT 210 Sound Design for Multimedia
3 Credits

Prerequisite: CIS 113 or PDT 150

This course explores the use of sound in multimedia productions. It focuses on how sound can enhance interactive productions and improve computer presentations. The student learns how to use the Macintosh computer as a full audio studio.

PDT 220 Multimedia Development
3 Credits

Prerequisite: PDT 150 or permission of instructor

This course explores the interactive process within all areas of program design, courseware authoring, delivery techniques and instruction strategies. The student is introduced to CD-ROM technology and produces an interactive program during the course.

PDT 290 Special Topics
3 Credits

Prerequisite: permission of instructor

This course provides an opportunity to examine new technology and advanced techniques in computer art.

PRODUCTION MANAGEMENT

PRM 211 Production Management I
3 Credits

This course presents the principles and practices of industrial management. It emphasizes the organizational structure of a production enterprise, production facilities, methods and procedures for effective plant layout, plan and equipment maintenance and purchasing.

PRM 212 Production Management II
3 Credits

Prerequisite: PRM 211

This course is a continuation of PRM 211. It emphasizes development of skill and knowledge in control systems, employee development systems and procedures for managing human resources.

PSYCHOLOGY

PSY 095 Learning and Skills Development

1 Credit

This is the core course for the Special Learning Support Program. Topics include attention and concentration organization skills, memory strategies, following directions and instructions, problem solving strategies and time management. Students with learning-related anxiety also benefit from this course.

PSY 100 Human Relations In Business

3 Credits

This course emphasizes psychological principles as related to the work environment. Topics include motivation, interpersonal relationships, self-understanding, employee-employer relations and group behavior.

PSY 101 General Psychology I

3 Credits

This course includes the scientific study of behavior with emphasis on the historical development of the discipline, research methods, psychobiology, sensation/perception, consciousness, emotion, motivation, stress/coping, learning and memory.

PSY 102 General Psychology II

3 Credits

Prerequisite: PSY 101 is recommended

This course is a continuation of PSY 101, and reviews the classical and current research on Life Span Psychology, Cognition, Intelligence, Language, Personality Theory, Psychotherapy, Psychopathology and Social Psychology.

PSY 109 Career Development

1-3 Credits

This course assists students in recognizing their career potential and provides tools for making realistic decisions concerning educational and occupational objectives.

PSY 115 Psychology of Adjustment

3 Credits

This course emphasizes personal growth and the development of interpersonal skills. Focus is on practical application of psychological principles and theories in achieving self-understanding and personal growth.

PSY 116 Stress Management

1-3 Credits

This course identifies the physiological, emotional and behavioral aspects of stress. Techniques of stress reduction and management are explored and applied.

PSY 205 Psychology of Women

3 Credits

This course covers emotional, cognitive, interpersonal and cultural contributions to female identity and gender role.

PSY 211 Introduction to Human Services I

3 Credits

This course integrates knowledge and theories from a variety of behavioral sciences. It is not intended to develop analysts or therapists, but rather is designed to sensitize the student to the issues and development of human services.

PSY 212 Introduction to Human Services II

3 Credits

This course examines in-depth the contemporary phenomenon of complex human behavior. Emphasis will be in the area of group dynamics, the communication process, group problem-solving and group growth.

PSY 217 Human Sexuality

3 Credits

This course is a survey of physiological and psychological aspects of human sexuality. Topics include relationships, sexual identity and sexual health.

PSY 226 Social Psychology

3 Credits

Prerequisite: Three credits of general psychology; three hours of introductory sociology or permission of instructor

This course covers behavior of humans in social settings including attitudes, aggression, conformity, cooperation and competition, prejudice and interpersonal attraction.

PSY 227 Death and Dying

3 Credits

Prerequisite: Three credits of general psychology or permission of instructor

This course covers philosophies of life and death, emphasizing dying, death, mourning and the consideration of one's own death.

PSY 235 Human Growth and Development

3 Credits

Prerequisite: Three credits of general psychology or permission of instructor

This course is a survey of human development from conception to death emphasizing physical, cognitive, emotional and psychosocial factors.

PSY 237 Assertiveness Training

1-3 Credits

This course teaches the awareness of individual rights and needs in interpersonal relationships.

PSY 238 Child Development

3 Credits

Prerequisite: Three credits of general psychology or permission of instructor

This course covers growth and development of the child from conception through the elementary school years, emphasizing physical, cognitive, emotional and psychosocial factors. *This course is co-scheduled with ECE 110 and may be taken as ECE 110 or PSY 238 but not both.*

PSY 239 Adolescent and Adult Development

3 Credits

Prerequisite: Three credits of general psychology or permission of instructor

This course covers growth and development of the individual from adolescence to death, emphasizing physical, cognitive, emotional and psychosocial factors.

PSY 249 Abnormal Psychology

3 Credits

Prerequisite: Three credits of general psychology or permission of instructor

This course is a study of abnormal behavior and its classification, causes, prevention and treatment.

PUBLIC ADMINISTRATION**PUA 105 Introduction to Public Administration**

3 Credits

This course examines the role and responsibilities of organizational management and administration in a public environment. The focus is on organizational and governmental relations at the local, state and federal levels. Coordination of various functions within an agency or organization is also discussed.

PUA 206 Administrative Law

2 Credits

This course focuses on the practices and procedures of administrative agencies and their limitations. The relationship between the courts and public agencies is examined. Due process is also discussed.

PUA 225 Budgeting and Financial Resources

3 Credits

This course focuses on the administrative and revenue requirements of the budget process, from budget formulation through auditing. Different types of budgets are examined. External financial resources are investigated and evaluated for adaptability to public agencies.

RADIOLOGIC TECHNOLOGY**RAD 100 Introduction to Radiologic Technology**

3 Credits

This course covers the fundamentals of radiologic technology, patient care skills, medical ethics, professionalism and related medical image terms. Also covered are material needed to help acclimate students into the clinical portion of their education.

RAD 105 Radiographic Procedures I

4 Credits

This course covers radiologic procedures, considerations and positioning. The course focuses on anatomical structures that are specific to radiography. A laboratory experience is included that covers the practice of radiographic positioning and instruction on how to operate and dispense ionizing radiation using the appropriate radiographic techniques.

RAD 106 Clinical Education I

3 Credits

Practical learning experience is provided in the clinical radiographic environment. Students are required to participate at pre-scheduled time periods and apply their radiographic skills in the clinical setting. All students are under the supervision of qualified personnel.

RAD 115 Radiographic Procedures II

4 Credits

This course is a continuation of RAD 105. More difficult radiographic procedures, considerations, positioning along with non-invasive contrast examinations, basic fluoroscopic positioning and examinations are also covered. The course focuses on the anatomical structure as it relates to radiography. This course also includes a laboratory experience that covers the practice of radiographic/fluoroscopic positioning and instruction on how to operate and dispense ionizing radiation using the appropriate radiographic techniques.

RAD 116 Clinical Education II

3 Credits

A continuation of RAD 106. Students have a pre-scheduled amount of clinical hours to fulfill their clinical competencies.

RAD 125 Radiographic Procedures III

3 Credits

More complex radiographic examinations that were not covered in RAD 105 and 106 are presented in this course. Anatomical structures are covered pertinent to radiographic students.

RAD 126 Clinical Education III

5 Credits

This course is a continuation of RAD 116. Students have a pre-scheduled amount of clinical hours to fulfill their clinical competencies.

RAD 160 Radiographic Physics I

3 Credits

Basic physics concepts, radiation concepts, electricity, electromagnetism and x-ray equipment are presented in this course.

RAD 165 Image Production I

2 Credits

This course presents radiographic film processing chemistry, processing area considerations, handling and film storage, radiographic film properties, intensifying screens and other image receptors, automatic processing, artifacts, x-ray beam restriction and filtration and x-ray grids.

RAD 170 Radiologic Physics II

3 Credits

This course is a continuation of RAD 160 and covers the x-ray tube, x-ray production, x-ray interactions as well as computer/digital image processing.

RAD 236 Clinical Education IV

5 Credits

Prerequisite: RAD 125

This course is designed to be a practical learning experience in the clinical radiographic environment. Students are required to participate at pre-scheduled time periods and apply and improve their radiographic skills that they have assimilated in their didactic and laboratory experience from RAD 105-115-125. This course is a continuation of RAD 126. Students have a pre-scheduled amount of clinical hours to fulfill their clinical competencies.

RAD 247 Clinical Education V

8 Credits

Prerequisite: RAD 236

This course is designed to be a practical learning experience in the clinical radiographic environment. Students are required to participate at pre-scheduled time periods and apply and improve their radiographic skills that they have assimilated in their didactic and laboratory experience from RAD 105-115-125. This course is a continuation of RAD 226. Students have a pre-scheduled amount of clinical hours to fulfill their clinical competencies.

RAD 255 Special Radiographic Procedures IV

3 Credits

Prerequisites: RAD 105, 115 and 125; BIO 201 and 203

This course focuses on special radiographic procedures such as arthrography, bronchography, mammography, myelography, arteriography, lymphangiography, sialography, venography, tomography, computed tomography, IV injection, pediatric and trauma radiology. Other imaging modalities and radiographic anatomical structures are covered as needed. This course does not have a laboratory.

RAD 257 Clinical Education VI

8 Credits

Prerequisite: RAD 247

This course is designed to be a practical learning experience in the clinical radiographic environment. Students are required to participate at pre-scheduled time periods and apply and improve their radiographic skills that they have assimilated in their didactic and laboratory experience from RAD 105-115-125. This course is a continuation of RAD 247. Student have a pre-scheduled amount of clinical hours to fulfill their clinical competencies.

RAD 265 Image Production II

3 Credits

Prerequisite: RAD 165

This course is a continuation of RAD 165 which emphasizes radiographic density, contrast, recorded detail, geometric factors, exposure latitude, beam filtration, secondary and scatter radiation, technique formulation, quality control techniques and assurance, radiographic equipment, image intensified fluoroscopy, recording media techniques and image noise. This course also reviews new imaging technologies that are currently on the market such as PAC's and digital imaging.

RAD 270 Radiation Biology

2 Credits

Prerequisite: RAD 255

This course presents the effects of ionizing radiation on biological systems and essential radiation protection guidelines to minimize radiation exposure to the radiographer, the patient and the public.

RAD 275 Radiation Pathology

2 Credits

Prerequisite: RAD 265

This course presents the general principles of pathology as well as disease processes and radiographic manifestations of specific body systems.

RAD 279 Emerging Modalities in Medicine Imaging

1 Credit

This course updates one's knowledge of emerging technologies and to give a foundation in medical imaging. The course includes a review of principles and comparison of images from ultrasound, nuclear medicine, CT, MRI, mammography and digital imaging techniques. A facility tour is planned during the last half of the course.

RAD 284 Basic Science Applications—Medical imaging

1 Credit

This course presents a unique opportunity to learn in a fun-filled way how the fundamental scientific principles of radiation sources really work and to understand the math when you have no interest in becoming a math expert. Instruction includes demonstration of these principles in medical imaging and at-home applications.

REAL ESTATE

REE 105 Real Estate Finance and Advanced Real Estate Law 3 Credits

This course teaches how to counsel buyers and sellers in financing techniques, including seller financing. It discusses the importance of calculations and disclosures required for the various methods of financing and provide an understanding of necessary financing documents. The course also covers advanced instruction in real estate law, contracts, brokerage relationships, financing and the ownership rights.

REE 110 Real Estate Practice and Law 5 Credits

This course explores real estate principles/practices and provides basic knowledge of real estate as well as a comprehensive study of real estate law as it pertains to individuals, real estate brokers, subdividers and developers. Current statutes and the law as applied to real estate transactions in the state of Colorado are emphasized. This course satisfies part of the Real Estate Salesman's or Broker's License. Career information and real estate office practices and procedures also are covered.

REE 205 Real Estate Appraisal 3 Credits

This course introduces principles, techniques and accepted methods of evaluating real property. The appraisal of residential property and the ways by which commercial property is appraised is also covered.

REE 207 Real Estate Investment 3 Credits

This course is a study of the investment opportunities of the single-family residence, multi-family residence, commercial, industrial and development markets.

REE 209 Real Estate Closings 3 Credits

This course studies documents related to closings in-depth. This includes the understanding of debit and credit items on the closing statement itself.

REE 210 Real Estate Tax Factors 3 Credits

This course covers basics of income tax laws related to real estate, basis, installment sales, depreciation and postponement of income tax, including tax deferred exchanges.

REE 216 Real Estate Listings and Selling Techniques 3 Credits

This course studies real estate techniques and how to use them as well as real estate selling and how it differs from other types of selling.

REE 217 Colorado Real Estate Law and Contracts 3 Credits

This course covers the preparation of the common real estate contracts used in typical Colorado real estate transactions. Current legal aspects required by the Colorado Real Estate Commission considerations are discussed. *This course satisfies part of the educational prerequisite requirements for the Real Estate Salesman's or Broker's License.*

REE 218 Seminar in Real Estate 1-3 Credits

This course covers selected areas, concepts and developments in or that affect the real estate industry.

SMALL BUSINESS MANAGEMENT

SBM 101 Starting a Small Business 1 Credit

This course reviews all of the components of starting a small business for the person with limited or no business experience who is considering establishing and operating a small business. Topics include financing the business plan, profile of a successful entrepreneur, marketing and pitfalls to avoid.

SBM 102 Managing a Small Business 1 Credit

This course covers the management process as it applies to the small business in detail. The management functions of planning organizing and controlling are explained. Decision-making skills are also covered.

SBM 105 Financing a Small Business 1 Credit

This course introduces the basics of financing a small business. It specifically examines the business plan, sources of capital, types of business loans and then briefly looks at how to maintain a cash flow.

SBM 107 Recordkeeping for a Small Business 1 Credit

This course emphasizes the importance of accurate record-keeping in a small business operation and the development of the basic skills to recognize simple bookkeeping procedures. Students are shown examples of journal entries, balancing records, checkpoints for ensuring accuracy of records, deposit requirements and tax forms.

SBM 109 Analyzing Financial Statements Used in a Small Business 1 Credit

This course introduces the tools, techniques, financial statements and financial ratios used in the financial management of a small business. Topics covered are balance sheets, profit and loss statements, financial ratios, depreciation and taxation.

SBM 115 Marketing for a Small Business 1 Credit

This course introduces the concepts, terminology and steps utilized in planning a marketing strategy. It also familiarizes students with the activities included in promoting a business.

SBM 116 Sales Techniques for the Entrepreneur 1 Credit

This course explores the importance of selling for the small business and provides information on identifying customers, the selling process, characteristics of successful sales representatives and the sales plan.

SBM 118 Starting and Marketing a Professional Service

1 Credit

This course allows students to learn the business steps essential to successfully start and market a professional service, such as a consulting business, an accounting office or a medical service.

SBM 119 Purchasing, Pricing and Inventory Control

1 Credit

This course explores the vital functions performed in the operation of a small business including purchasing, pricing and inventory control. Each function is examined individually and relative formulas, definitions, guidelines and management tools are discussed.

SBM 130 Business Writing Skills for the Entrepreneur

1 Credit

This course reviews the rules and skills to effectively write business correspondence, news releases, policies and procedures, statements, ads for positions and job descriptions.

SBM 206 Legal Aspects of a Small Business

1 Credit

This course is designed to equip the small business owner with the necessary knowledge about legal issues to effectively negotiate business transactions. This course focuses on business organizations, contracts and agreements and protecting the business.

SBM 210 Trends in American Business

1 Credit

This course reviews current business publications and gives students the framework in which to understand current business trends. Techniques for learning to analyze and predict national and local business trends are taught and students are shown how the information is useful to the small business owner.

SBM 215 Managing Human Resources in a Small Business

1 Credit

This course teaches students about managing a company's most vital asset—the employees. This course covers hiring employees, developing training programs, supervising employees, conducting performance evaluations and developing a compensation package.

SOCIOLOGY**SOC 101 Introduction to Sociology I**

3 Credits

This course examines the basic concepts, theories and principles of sociology, as well as human cultures, social groups and the social issues of age, gender, class and race.

SOC 102 Introduction to Sociology II

3 Credits

This course examines social institutions and organizations from the macro perspective. It emphasizes the issues of social change, demography, social movements and conflicts and trends within education, religion, family, political and economic structures.

SOC 117 Human Relations in Business and Industry

3 Credits

This course emphasizes psychological/sociological principles as related to the working environment. Specific topics include motivation, interpersonal relationships, self-understanding, employee-employer relations and group behavior.

SOC 201 The Museum in Urban Life

1 Credit

This course explores the roles a museum plays in the life of a city by studying the Denver Art Museum and the Museum of Natural History. This course notes how history is selectively preserved and the powerful role select segments of the community play in shaping new directions in art.

SOC 205 Marriage and Family

3 Credits

This course helps students develop an understanding of marriage, family and kinship. It examines the family as an institution and how social, cultural and personal factors influence family relations. The stability and diversity of the family are explored, along with current trends and some alternative life styles.

SOC 215 Contemporary Social Problems

3 Credits

This course explores current social issues that result in societal problems. It focuses on such issues as civil liberties, gender discrimination, substance abuse, crime, poverty and social change.

SOC 218 Sociology of Minorities

3 Credits

This course explores the variety of intergroup relations; race, nationality, ethnic, income and other minority classifications. Patterns of prejudice, discrimination and possible solutions to these issues are examined.

SOC 226 Social Psychology

3 Credits

Prerequisite: PSY 101 or PSY 102 or permission of instructor
This course explores social factors which influence the behavior of individuals as they interact with others. Specific topics include aggression, attraction, prejudice, communication, group dynamics, leadership and non-verbal communication. *This course is co-scheduled with PSY 226 and may be taken as PSY 226 or SOC 226 but not both.*

SOC 227 Sociology of Death and Dying

3 Credits

This course examines the event of death and the process of dying. It explores the cause of death and the experience of dying in nursing homes, emergency rooms and hospice. A review of the ethical and political issues of death and dying are studied.

SOC 254 Juvenile Delinquency

3 Credits

This course examines the causes and consequences of delinquency. Types of young people committing offenses, the acts committed, juvenile courts, detention centers, parole and probation are topics covered.

SOC 255 Criminology

3 Credits

This course presents the nature and causes of crime as a social phenomenon. Major criminological theories are considered; the characteristics of criminal behavior and the processes of making laws, breaking laws and the reaction toward the breaking of laws are studied.

SOC 257 Prevention, Correction, Treatment and Custody

1-3 Credits

This course includes an overview of correctional approaches. Various types of prisons, from maximum security to community-based corrections and the internal structure and procedures of today's prisons are studied.

SOC 258 Violence and Morality

3 Credits

This course looks at the moral, physical, emotional and legal ramifications of the use or the lack of use, of lethal force in human relations. This course focuses upon values introduces the fate of victims of violent crime, both those who survive and the families of those who do not. It also investigates the nature of the criminal mind using readings and texts written by specialists in forensic psychiatry. In addition, students are introduced to the Judeo-Christian, common law tradition that has led to the evolution of our constitutional right to self-preservation.

SOLAR ENERGY TECHNOLOGY

(See Construction Technology—Solar Construction Technology.)

SPANISH**SPA 101 Conversational Spanish I**

3 Credits

This is the first course in a sequence for beginning students who wish to understand and speak Spanish. The material includes basic vocabulary, grammar and expressions that are used in daily situations and in travel.

SPA 102 Conversational Spanish II

3 Credits

Prerequisite: SPA 101 or permission of instructor
This is the second course in a sequence for beginning students who wish to understand and speak Spanish. The material continues to cover basic conversational patterns, expressions and grammar.

SPA 111 Foreign Language I

5 Credits

This course begins a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

SPA 112 Foreign Language II

5 Credits

Prerequisite: SPA 111 or permission of instructor
This course continues the development of functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

SPA 211 Foreign Language III

3 Credits

Prerequisite: SPA 112 or permission of instructor
This course continues the development of increased functional proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to the individual texts and instructors.)*

SPA 212 Foreign Language IV

3 Credits

Prerequisite: SPA 211 or permission of instructor
This course continues the development of increased proficiency in listening, speaking, reading and writing the language. *(The order of the topics and the methodology vary according to individual texts and instructors.)*

SPA 225 Spanish for the Professional

1-3 Credits

Prerequisite: Permission of instructor
This course, designed for professionals, covers specific job related vocabulary, expressions and grammar.

SPA 231 Current Spanish—Spoken and Written I

3 Credits

Prerequisite: SPA 112 or permission of instructor
This is a second-year course leading to more fluent and current usage of Spanish. Current Spanish publications are used.

SPA 232 Current Spanish—Spoken and Written II

3 Credits

Prerequisite: SPA 231 or permission of instructor
This course is a continuation of SPA 231 with more emphasis on fluency in speaking and current usage.

SPEECH

SPE 111 Survey of Communication

3 Credits

This course introduces the many facets of communication such as verbal and nonverbal behaviors, information selection/interpretation/retention, the meaning of symbols, perception of life, relationship of media to messages and listening patterns.

SPE 115 Principles of Speech Communication

3 Credits

This course combines theory of speech communication with public speech performance skills. It emphasizes speech delivery, preparation organization, support and audience analysis.

SPE 125 Interpersonal Communication

3 Credits

This course is an examination of communication involved in interpersonal relationships occurring in family, social and career situations. Relevant concepts include self-concept, perception, listening, nonverbal communication and conflict negotiation.

SPE 215 Professional and Business Speaking

2 Credits

Prerequisite: SPE 115

This course covers speech communication techniques applicable to professional, business and educational careers. Emphasis is on conference speaking, marketing presentations, business meetings, briefings, interviewing and managerial/supervisory communication. It includes skill development and analysis of communication.

SPE 216 Advanced Public Speaking

3 Credits

Prerequisite: SPE 115

This course is a continuation of SPE 115 with special emphasis on informative and persuasive public speaking skills and techniques using longer, in-depth speeches. Work in other speech formats may include extemporaneous, impromptu, manuscript, special occasion speeches and group decision making.

SPE 217 Group Communication

3 Credits

This course enables students to improve their ability to analyze, evaluate and impact group discussions, group processes, leadership responsibilities, group dynamics, group decision making and other elements of group communication.

SPE 220 Intercultural Communication

3 Credits

This course explores the link between culture and communication and develops and/or enhances communication skills and abilities appropriate to a multicultural society. Emphasis is on understanding diversity within and across cultures. Relevant concepts include perception, worldview, context, ethics, language and nonverbal communication.

SPE 230 Argumentation and Debate

3 Credits

Prerequisites: SPE 115 or permission of instructor

This course acquaints students with the theory of argumentation, including reasoning, evidence, refutation and critical thinking. It includes practice in preparation and oral analysis of selected arguments and styles of debating.

SPE 275 Intercollegiate Forensics

1-3 Credits

Prerequisites: SPE 115 or permission of instructor

This course involves practice/experience in intercollegiate speech activities including participation in individual events, debates and designated weekend college speech tournaments. *This course may be repeated up to six credit hours.*

THEATRE

THE 105 Introduction to the Theatre Arts

3 Credits

This course includes discussions, workshops and lectures designed to discover, analyze and evaluate all aspects of the theatre experience including scripts, acting, directing, staging, history, criticism and theory.

THE 111 Acting I

3 Credits

This course covers basic acting techniques and approaches including scene study, improvisation and script analysis. It includes practical application through classroom performance.

THE 112 Acting II

3 Credits

Prerequisite: THE 111 or permission of instructor

This course continues to explore basic acting techniques and approaches, including scene study, improvisation and script analysis. It includes practical application through classroom performance.

THE 116 Technical Theatre

3 Credits

This course introduces students to the technical aspects of theatre production through the study of set design and construction, costuming, makeup, stage lighting and sound.

THE 131 Theatre Production I

3 Credits

Prerequisites: THE 111 and/or 112 or permission of instructor
This course allows students to put into practice theories of theatre production. Participation in set construction, costuming, lighting, sound, acting, stage managing and administration is available.

THE 132 Theatre Production II

3 Credits

Prerequisites: THE 111 and/or 112 or permission of instructor
This course further explores the theories of theatre production. Participation in set construction, costuming, lighting, sound, acting, stage managing and administration is available.

THE 140 Stage Dialects

1 Credit

This course develops students' skills in nine dialects and accents.

THE 141 Improvisational Acting Workshop I

1 Credit

This course explores the art of creating a scene without dependence on script or preconceptions (*improvisation*). Not to be confused with "ad-lib," this course utilizes the "Second City" style of improvisation.

THE 142 Improvisational Acting Workshop II

1 Credit

Prerequisite: THE 141

This course is continuation of THE 141 with more difficult and complicated theatrical challenges.

THE 143 Basic Acting Techniques

1 Credit

This course covers scene work and acting exercises for people with little or no training or experience in the theatre. The Stanislavski System of character analysis and development is stressed.

THE 144 Scene Study

1 Credit

Prerequisite: THE 143

This course continues scene work in the Stanislavski System with material of a more demanding nature, such as classical and/or avant garde writers.

THE 145 Tryouts and Auditions

1 Credit

Prerequisite: Permission of instructor

This course focuses on the selection and preparation of audition materials with an emphasis on modern and classical, serious and comic pieces. Cold readings and commercial copy techniques are presented; theatrical and media resumes are discussed.

THE 170 Dance and Stage Movement

3 Credits

This course introduces students to the basic elements of modern dance and to the potential of dance and movement as a means of communication.

THE 210 Singing for Actors

3 Credits

This course covers the basic techniques of singing including breathing, articulation and resonance. Technique, strengthening confidence, selection and song analysis, interpretation and musicality, are emphasized through in-class performances.

THE 211 Development of Theatre I

3 Credits

This course surveys the history and evolution of the theatre from Ancient Greece to the Renaissance, emphasizing all aspects of the art form from period values to analysis of dramatic literature and performance.

THE 212 Development of Theatre II

3 Credits

This course surveys the history and evolution of drama from the Renaissance to the present, emphasizing all aspects of the art form from period values to the analysis of dramatic literature and performance.

THE 215 Play Writing

3 Credits

This course gives students an opportunity to learn and practice play writing techniques, thereby improving creative writing skills. Elements of dramatic structure, dialogue, styles and theatrical practices are emphasized. *This course is co-scheduled with ENG 215 and may be taken as THE 215 or ENG 215 but not both.*

THE 231 Advanced Theatre Production Techniques I

3 Credits

Prerequisites: THE 131, 132 or permission of instructor

This course provides students, who have completed THE 131 or 132, further practice in communication and organizational skills gained through the theatre production process.

THE 232 Advanced Theatre Production Techniques II

3 Credits

Prerequisites: THE 131, 132 or permission of instructor

This course provides students, who have completed THE 131, 132 or 231, further practice in theatre production skills. Generally, students are given advanced creative projects such as set or costume design, directing, major acting roles or stage management.

THE 271 Dance for Musical Theatre

3 Credits

This course introduces students to dance within the context of musical theatre. Students gain an understanding of nonverbal communicative potential of stage movement both in theatre production and in life.

TRANSPORTATION AND LOGISTICS MANAGEMENT

TLM 110 Introduction to Logistics

3 Credits

Logistics and transportation are a \$1 trillion industry in the U.S. providing many high paying jobs. This course provides students with a broad and general exposure to business logistics, as well as an understanding of the basic concepts and techniques important to analyzing business logistics problems. It also addresses how various activities are important to logistics, how they are related and how they interact with each other.

TLM 205 Modes of Transportation

3 Credits

This course provides students with a broad understanding of the various modes of transportation, their relationships and special uses. The course also examines the regulatory, competitive, technical and legal environment in which transportation operates. This course shows students how each form of transportation operates and gives students the foundation to recommend type of transportation to businesses.

WATER QUALITY MANAGEMENT TECHNOLOGY

(All courses are approved for CEUs.)

WQM 100 Introduction to Water Quality Management

3 Credits

This course introduces the water and wastewater treatment field and acquaints the prospective technicians with the various applied science concepts that are used to operate, maintain and monitor water quality. Topics include hydrological cycle, water sources, hydraulics, ecosystems, pollution, water chemistry, water calculations, microbiological aspects of water and water quality control.

WQM 104 Cross Connection Control

2 Credits

This course introduces the principles of hydraulics, design, operation and minimum specifications of backflow prevention devices. In addition, the student is taught cross-connection control law, rules and regulations, record keeping, application for specific devices, safety and device repair. *This course may be used to prepare for the Colorado Certification Examination for Cross-Connection Control Technicians.*

WQM 105 Specific Calculations for Water Quality Management

4 Credits

This course provides students with an in-depth study of the calculations associated with water and wastewater treatment. Topics include dimensional analysis, manipulation of conversion factors, geometric figures, velocities, detention time, surface loading, filtration and backwash rates, porosity, weir over flow rates, efficiencies, weight of dry solids, sludge pumping, settleable solids, volatile solids, mean cell residence times, settleability, disinfection and chemical dosage as relating to trickling filters, ponds, RBC and activated sludge.

WQM 106 Mechanical-Physical Treatment

3 Credits

This course serves as a basic introduction into wastewater treatment. Topics include the technician and their responsibility, effects of waste discharges, natural cycles, solids in wastewater, NPDES permits, collection systems, pretreatment, primary treatment, secondary treatment, advanced treatment, flow-measuring, solids handling and disposal.

WQM 107 Biological Treatment

3 Credits

The course covers the major types of wastewater treatment processes-including trickling filters, rotating biological contactors, lagoons and activated sludge. Topics of each system include: design, operating guidelines, process control, testing procedures, maintenance and safety.

WQM 108 Sludge Treatment

3 Credits

This course includes aerobic and anaerobic digestion; solids thickening using gravity, dissolved air, centrifuge, vacuum filters and drying beds; sludge stabilization by chemical means; sludge conditioning by chemical, thermal, wet oxidation or elutriation; volume reduction by composting or mechanical drying; sludge destruction by incineration; sludge storage; and land disposal with environmental controls. Topics include equipment, operational strategy, performance standards, loading and trouble-shooting.

WQM 109 Water Distribution

3 Credits

This course covers the purpose, selection and location of water storage facilities and the operation and maintenance of related equipment. Topics include storage facilities and capabilities, booster pumps, water mains and appurtenances, joints, pipe protection and installation, valves, fittings and hydrants. Water quality standards, contaminants and degradation inspection and monitoring, system troubleshooting, surveillance, cross connections, pressure, main breaks, corrosion control, disinfection and emergency planning are also covered.

WQM 115 Water Sources and Supply

3 Credits

This course provides an introduction into the water supply systems and sources of water. Topics include sources and selection of water, water quality problems, reservoir management, intake structures, well and introductory plant operations.

WQM 116 Water Pre-treatment

3 Credits

This course covers coagulation, flocculation, sedimentation, filtering, corrosion and taste and odors. Topics for each process include descriptions, operating procedures, associated calculations, start-up and shut down procedures, laboratory tests, troubleshooting, maintenance, safety and records.

WQM 117 Domestic Water Treatment Processes

3 Credits

This course covers iron and manganese control, fluoridation and softening, trihalomethanes, demineralization and handling of process waste. Topics for each process include process descriptions, operating procedures, start up and shut down procedures, laboratory test, troubleshooting, maintenance, safety and records.

WQM 118 Wastewater Collection Systems

3 Credits

This course covers the purpose, components and design of collection systems. Topics include safety procedures, inspection and testing, pipeline cleaning and maintenance, underground repair, lift stations and sewer rehabilitation.

WQM 119 Basic Water Quality Analysis

4 Credits

This course relates the results of laboratory control tests to the chemistry of water and wastewater treatment. Students gain the skills and technics to operate within a laboratory. Topics include laboratory equipment and instrumentation-identification, set-up and calibration; safety, sample collection and preservation, written reports and laboratory tests. Laboratory testing includes harness, alkalinity, dissolved oxygen, biochemical oxygen demand, chlorine residual, pH, phosphorus, dissolved solids, total solids, suspended solids, turbidity, langier index, fluoride and biomonitoring.

WQM 120 Water Quality Equipment Maintenance

4 Credits

This course provides an in-depth understanding of mechanical and electrical equipment maintenance. Topics include correct use of power and handtools, preventive and repair maintenance of pumps, motors, chlorinators, motor control units and other treatment plant equipment and safety procedures.

WQM 121 Environmental Sampling and Volume Measurement

Variable

Prerequisite: College level reading, college level math
This course is designed to provide students with the knowledge and skills to collect contaminant samples for laboratory analysis, to select and prepare appropriate sample containers; to keep accurate sampling records; access sampling sites and do composite sampling. This course also provides sampling safety skills and sampling quality controls and assurance methods.

WQM 122 Basic Electricity for Water Quality Systems

3 Credits

This course provides an understanding of electrical theory, various types of electrical equipment found in treatment facilities, operation, troubleshooting basic electrical problems and safety procedures.

WQM 125 Water-Wastewater Certification Review for Class C and D

3 Credits

This course helps the student prepare for the operators certification test in water/or wastewater at the C or D level. Topics include water and wastewater principles, mathematics, hydraulics, conventional treatment of water, wastewater sedimentation, water filtration, Colorado Primary Drinking Water Regulations, biological treatment of wastewater, effluent standard for wastewater, sludge handling and disposal, disinfection, pumps, safety and housekeeping and laboratory analysis.

WQM 126 Safety in the Water Quality Industry

3 Credits

This course covers the safety aspects in the water and wastewater industry. Topics include development of safety policies and programs, job safety orientation, driving practices, CPR/first aid, confined spaces, safety with energy-electrical, mechanical, thermal and pressure, trenching, streetwork, laboratory, treatment equipment, construction vehicles/equipment and chlorine and other chemicals.

WQM 200 Hydraulics for Water Quality Management

4 Credits

This course introduces the mathematical principles of density, specific gravity, pressures horsepower and energy costs, velocities, weirs, parshall flumes, venturi meters, California pipe method, flows from open-end pipes, surface loading rates, settling velocities and classification of flow.

WQM 206 Design Interpretations of Water Quality Systems

4 Credits

This course provides an in-depth study and interpretation of blueprints, scale drawings, contour maps, profile drawings and symbols application to treatment facilities. It also includes basics in HVAC, lighting, construction techniques, building materials and energy conservation.

WQM 207 Operations and Control of Activated Sludge Systems

4 Credits

The course provides a basic engineering overview of the activated sludge process and develops all process control activities around the biology of the treatment system. Topics include: settleometers, flows concentrations, oxygen uptake, turbidity, microscopic examination of organisms, trend charting, process control strategies. Classroom activities are reinforced by field trips to various treatment facilities.

WQM 208 Advanced Wastewater Treatment

3 Credits

This course prepares the student for the advanced stages of solids removal, nitrogen removal, solids removal, effluent disposal and wastewater reclamation. Topics include: design, troubleshooting, maintenance, start-up and shut-down, monitoring and interpretation of test results.

WQM 210 Advanced Water Quality Analysis

4 Credits

Prerequisite: WQM 119

The course is a continuation of WQM 119. Advanced topics and laboratory tests to be covered include: ammonia, total Kjeldahl nitrogen, nitrate nitrogen, oil and grease, coagulation and flocculation, jar tests, sulfate, surfactants, taste and odor, specific conductance, metals, total organic carbon, biomonitoring, federal and state water regulations/standards, discharge monitoring reports and completion of DMRs and NPDES reports.

WQM 216 Biological and Bacteriological Water Quality Analysis

4 Credits

Prerequisites: WQM 119, 210

This course studies microorganisms associated with all phases and concerns of water and wastewater treatment including bacteria, protozoa and algae. Topics include: microorganisms used in treatment, as indicators and the pathogens; regulations, health hazards and laboratory safety. Laboratory work involves media preparation, coliform testing, standard plate count, algae identification, activated sludge examination, volatile acids/alkalinity and biomonitoring.

WQM 217 Disinfection Techniques in Water Quality Systems

4 Credits

This course provides an understanding of disinfection alternatives used in treatment systems such as chlorine, ozone, ultraviolet light and bromine chloride. Topics include chemistry, equipment/maintenance, start-up/shutdown procedures, hazards, safety and troubleshooting.

WQM 230 Industrial Monitoring and Treatment

3 Credits

This course provides an understanding of industrial treatment. Various types of treatment systems are reviewed such as floatation, screening and microscreening, neutralization, coagulation and precipitation, adsorption, filtration, pure oxygen systems, chemical feed systems. Also included are safety, collection and preserving of samples, establishing an industrial monitoring program, operational strategies, interpretation of laboratory results, start-up/shutdown of systems, maintenance, plans and specification, various types of industrial wastes and troubleshooting.

WELDING FABRICATION TECHNOLOGY

WFT 100 Oxy-Acetylene Safety, Cutting and Welding

3 Credits

This course enables students to learn and use all shop safety rules and perform work in a safe manner and demonstrate an ability to perform oxy-acetylene welding and fuel gas burning.

WFT 107 Blueprint Reading and Estimating

3 Credits

Prerequisite: MAT 056 is recommended

This course enables students to demonstrate the ability to read welding shop drawings, identify various welding symbols and estimate the cost of materials and labor.

WFT 108 S.M.A.W. Safety, Electrode Identification and Surface Padding

3 Credits

This course applies safety rules applicable to S.M.A.W. power supplies, identify electrodes by A.W.S.—A.S.T.M. numbering system, and practice surface padding in designated positions.

WFT 110 S.M.A.W. Joints in Three Positions

3 Credits

Prerequisite: Permission of instructor

This course demonstrates the ability to properly set up and weld the lap, tee, butt and corner joints in the 2G, 3G and 4G positions using specified electrodes.

WFT 115 Plate Code Testing E7018 with Backing Strip

3 Credits

Prerequisite: Permission of instructor

In this course students demonstrate the ability to weld beveled test plates using a backing strip in the 2G, 3G and 4G positions with E7018, according to applicable welding standards.

WFT 116 Plate Code Testing E6010 Without Backing Strip

3 Credits

Prerequisite: Permission of instructor

In this course students demonstrate the ability to weld beveled test plates without a backing strip in the 2G, 3G and 4G positions with E6010, according to applicable welding standards.

WFT 118 Special Applications in Arc Welding

3 Credits

Prerequisite: WFT 115 or permission of instructor

In this course students demonstrate the operation of air-arc process, welding with stainless steel electrodes, welding cast iron and using various diameter electrodes.

WFT 200 Pipe Joint Design, Fabrication and Testing 2G

3 Credits

Prerequisite: Permission of instructor

In this course students identify, fabricate and set up the standard open-butt designs; they demonstrate an ability to weld open-butt joint designs and weld beveled open-butt pipe joints in the 2G position using E6010/11 electrode in accordance with applicable standards.

WFT 202 Pipe Test A.S.M.E. Section IX, E6010 and E7018

3 Credits

Prerequisite: WFT 200

In this course students prepare and weld pipe joints using E6010 and E7018 in all positions in accordance with A.S.M.E. Section IX.

WFT 207 G.T.A.W. Safety and Welding Joints

3 Credits

Prerequisite: Permission of instructor

In this course students apply the process of fusion welding of low carbon steel joints (lap, tee, open butt), using the appropriate power supply and accessories. Students also use silicon bronze filler material to weld low carbon steel joints. Students use the G.T.A.W. process to weld the root pass on a beveled pipe joint and fill the remaining groove with E7018 electrode in the S.M.A.W. process in 2G, 5G and 6G position.

WFT 209 G.M.A.W.—Pipe and Plate Code Testing

3 Credits

Prerequisite: Permission of instructor

In this course students identify various types of power supplies and accessories needed for the MIG welding process; employ the short-circuit method of welding on low carbon sheet steel, plate and pipe; demonstrate an ability to weld a test specimen on the 3G vertical down plate and the 5G pipe joint positions; and also demonstrate an ability to weld using the flux-core process.

WFT 210 Structural Shapes and Joints Design—Project Development

3 Credits

Prerequisites: WFT 107, 108, 207

In this course students recognize and measure various structural shapes and joint designs and develop a shop drawing of a project (student's choice or selected by the instructor).

WFT 235 Pipe Test A.S.M.E. Section IX, E6010 and E7018

3 Credits

Prerequisites: WFT 200, 202

In this course students prepare and weld pipe in all positions using E6010 for root and E7018 for fill, according to A.S.M.E. Section IX.

WFT 236 Pipe Joint Design and Fabrication

3 Credits

Prerequisites: WFT 200, 202 and 235

In this course students demonstrate an ability to lay out and fabricate pipe joints, including three-piece 90-degree turns, branch to header and reducers using E6010 electrode, according to appropriate standards.

For Your Information

Affirmative Action/ Equal Opportunity

Red Rocks Community College is committed to diversity in its people and programs. The college is an equal opportunity educational institution and does not discriminate on the basis of race, color, religion, national origin, sex, age, veteran status or disability.

The college's Affirmative Action/Equal Opportunity Program Plan has been approved by the State Board for Community Colleges and Occupational Education. It is available for individual, public, and agency review in the Human Resources office. The college has designated the Director of Human Resources as its Affirmative Action officer. For information contact Human Resources, Red Rocks Community College, 13300 West Sixth Avenue, Box 17 Lakewood, Colorado 80401-5398, or call (303) 914-6297. Other inquiries may be made to the Director of Affirmative Action for the Colorado Community College and Occupational System, 1391 Speer Boulevard, Denver, Colorado 80204, (303) 620-4000; or the Office for Civil Rights, U.S. Department of Education, 1961 Stout Street, Denver, Colorado 80294.

Privacy Notification

The Family Education Rights and Privacy Act of 1974 permits Red Rocks Community College to release "directory information" about you to interested parties. "Directory information" does not include grades, but does include the following:

- Your name
- Major field of study
- Participation in officially recognized activities and sports
- Dates of attendance
- Degrees and certificates awarded
- Most recent previous education and educational institution attended

If you don't want us to release directory information about you without your specific consent, please notify the Admissions Center in writing within 12 days of registration. You must repeat this process each session that you want your directory information withheld.

Students with Disabilities

Red Rocks Community College offers many special services to students with disabilities, whether the disability is permanent or temporary. The college complies with and fully supports Section 504 of the Rehabilitation Act of 1973, with amendments of 1974, as well as the Americans with Disabilities Act (ADA) of 1990, regarding nondiscrimination on the basis of handicap. Reasonable accommodation will be provided upon request for persons with disabilities. If you have a disability and require an accommodation to participate in any class program, service or other activity at Red Rocks, please contact the Office of Services for Special Populations by calling 914-6376 or direct line 980-8776 TDD/V.

Drug and Alcohol Abuse Prevention Program

The Law

Red Rocks Community College complies with the Drug Free Schools and Communities Amendments of 1989. A copy of this Act is on file in the Office of Student Life and Human Resources Office.

Standard of Conduct

Students and employees shall not engage in the unauthorized or unlawful manufacture, distribution, dispensation, possession, use/abuse of alcohol and/or illicit drugs on college property or as a part of any college activity.

Legal Sanctions

There are legal sanctions for violations of the Standard of Conduct. Any student or employee who is convicted of the unlawful manufacture, distribution, dispensation, possession, use or abuse of illicit drugs or alcohol is subject to criminal penalties under local, state and federal law. These penalties range in severity from a fine of \$100 up to \$8,000,000 and/or life imprisonment. The exact penalty assessed depends upon the nature and severity of the individual offense.

College Penalties

The college will impose penalties against students and employees who violate the above Standard of Conduct. Violators will be subject to disciplinary action under employee and student disciplinary policies. The sanctions include, but are not limited to, probation, suspension or expulsion from the college or probation, suspension or termination of employment; and referral to authorities for prosecution, as appropriate.

Health Risks

Many health risks are associated with drug and alcohol abuse. Risks include but are not limited to: malnutrition, brain damage, heart disease, pancreatitis, cirrhosis of the liver, mental illness, death, low birth-weight babies and babies with drug addictions. Personal relationships, family dynamics, ability to work and study are also at risk.

Illegal Substances

A listing of controlled substances is on file for your reference in the Office of Student Life and Human Resources Office.

Referral Sources

Referral for counseling, treatment, rehabilitation and re-entry programs are available through:

The College

Career Resource Center	914-6255
Human Resources Office	914-6298
Student Life Center	914-6372

The Community

Al-Anon — Al-ATeen	321-8788
Alcoholics Anonymous	322-4440
Cenikor Prevention Network	234-1288
Mile High Council Alcoholism/ Drug Abuse	759-5555
Narcotics Anonymous	832-3784
Suicide Depression Crisis Hotline	860-1200

Or consult the yellow pages of the local telephone book for a listing of all private and community-based programs. Check listings under "Alcoholism Treatment" and "Drug Abuse Information and Treatment." HOTLINE, National Institute of Drug Abuse (NIDA), 1-800-662-HELP.

Directory

State Board for Community Colleges and Occupational Education (SBCCOE)

Raymond Wilder, Chair
Glenda Barry, Vice Chair
Rolf Anderson
Susan Ayres Davies
Robert Duncan

Julianne Haefeli
William Hornby
Kristy Schloss
Ralph Torres

Colorado Community College and Occupational Education System (CCCOES)

Dr. Jerome F. Wartgow, President

Red Rocks Community College Advisory Council

Dan Leach, Chair
Greg Martinez, Vice Chair
Holli Baumunk
Luanne Hazelrigg

David Nielson
Dr. Samuel Romberger
Sandra Rue

Red Rocks Community College President's Leadership Team

Dorothy A. Horrell, President
Roberta L. Bhasin, Executive Director of Communication
Linda Bowman, Vice President of Arts and Business
Jeff J. Olson, Executive Director of Human Resources
Cliff D. Richardson, Vice President of Administrative Services
Merna S. Saliman, Vice President of Learning Design and Support Services
Ted Sandquist, Executive Director of Red Rocks Community College Foundation
Larry Spraggs, Vice President of Science and Technology
Randy VanWagoner, Director of Institutional Research and Planning

This Directory contains the best information available at press time. Due to the college's restructuring, some areas may be incomplete.

Administrators

ADDINGTON, Peggy
Controller. B.S., Ohio State University, 1966

BHASIN, Roberta
Executive Director, Communication. M.B.A., Pepperdine University, 1979; B.A., University of Washington, 1968

BOWMAN, Linda
Vice President, Arts and Business. Ph.D., University of Colorado at Denver, 1995; M.P.A., University of New Orleans, 1981; B.A., University of South Alabama, 1972

CARLSON, Nancy
Director, Job Placement/Cooperative Education. B.A., San Diego State University, 1971; A.A., Grossmont Junior College, 1969

CRAM, Caryll
Director, Colorado Institute for Gender Equity in Vocational Education. M.S., University of Minnesota, 1971; A.S., University of Minnesota, 1966

DeREYES, Diane
Director, Financial Aid. M.S., University of Colorado at Denver, 1993; B.S. University of Southern California, 1982

DEY, Sarah
Director, Learning Development Center/LARC. M.A., Colorado State University, 1971; B.A., Colorado State University, 1956

DOMINGUEZ, Anna
Director, Special Projects. B.F.A., University of Colorado, 1976

GEARY, Wesley
Director, Business Services. M.S., North Texas State University, 1981; B.B.A., North Texas State University, 1980

HAMMOND-HARMS, Theona
Coordinator, Services for Special Populations/LARC. M.A., University of Northern Colorado, 1984; B.A., University of Colorado, 1978; A.A., Red Rocks Community College, 1973

HEGEMAN, Diane
Assistant to the Vice President, Learning Design and Support Services/LARC. M. Ed., Colorado State University, 1989; B. Ed., Colorado State University, 1980

HORRELL, Dorothy
President. Ph.D., Colorado State University, 1992; M.Ed., Colorado State University, 1978; B.S., Colorado State University, 1973

JONES, Jim
Director, Office of Student Life. M.Ed., Texas Tech University, 1974; B.S., Texas Tech University, 1969

McNALLY DUNN, Molly
Coordinator, School-Age Child Care. B.A., St. Joseph College, 1971

OLSON, Jeff

Executive Director, Human Resources. M.A., University of Oklahoma, 1993; B.A., Doane College, 1992

RICHARDSON, Cliff

Vice President, Administrative Services. M.P.A., University of Colorado, 1987; B.S., Metropolitan State College, 1978

SALIMAN, Merna

Vice President, Learning Design and Support Services. Ed.D., University of Northern Colorado, 1983; M.A., University of Northern Colorado, 1977; B.A., Loretto Heights College, 1975; A.A., Arapahoe Community College, 1974

SANDQUIST, Theodore

Executive Director, Red Rocks Community College Foundation. B.A., Bowdoin College, 1959

SCHANTZ, Robert

Director, Recruitment and Outreach. M.Ed., Colorado State University, 1992; B.S., Metropolitan State College, 1977; A.A., Arapahoe Community College, 1976

SEEHUSEN, Vicky

Director, Computing Services. M.B.A., Regis College, 1987; B.S., National College, 1981

SPRAGGS, Laurence

Vice President, Science and Technology. D.A., Idaho State University, 1980; M.S., Wayne State University, 1973; B.A., Wayne State University, 1970

SWAIN, Steven

Director, Physical Plant. M.P.A., University of Denver, 1984; B.S.B.A., University of Delaware, 1975

VAN WAGONER, Randall

Director, Institutional Research and Planning. M.A., University of Michigan, 1992; B.A. Oakland University, 1990

YOHE, Bennett

Assistant to the Vice President, Learning Design and Support Services/Faculty Support and Development. Ed.S., University of Iowa, 1974; M.A., University of Iowa, 1974; B.A., University of Iowa, 1971

ZELLER, Betsy

Director, Grants and Development. Ph.D., Colorado State University, 1988; M.A., University of Northern Colorado, 1975; B.A., Colorado State University, 1969

Professional Technical Staff**ANDERSON, Cindy**

Academic Advisor, Career Resource Center. B.A., University of Colorado, 1975

AWONJI, Beatrice

Coordinator, Computer Access Center/LARC. M.S., Southern Illinois University, 1988; B.S., Southern Illinois University, 1987

BENNETT, Monica

Coordinator, Weekend College. M.Ed., University College, 1985; B.Ed. O.L.M. College of Education, 1977

BENWARE, Cheryl

Grant Coordinator, Pathways/Career Resource Center. B.A., University of Colorado, 1969

CLAIRE, Virginia

Learning Development Center Lead, Arvada Campus. B.S., Regis University, 1987; A.S., Red Rocks Community College, 1985

COLLUM, Judy

Manager, Corporate Learning Center, The Red Rocks Institute. M.Ed., University of Oklahoma, 1971; B.S.Ed., University of Oklahoma, 1967

CROWLEY, Ruth

Marketing Manager, RMEC
M.A. University of New Mexico, 1992; B.A. Northern Illinois University, 1969

DOPHEIDE, Viki

Financial Aid Advisor, Financial Aid. B.A., Fort Lewis College, 1992; A.A.S. Front Range Community College, 1989

GUNTHER, Maureen

Coordinator, School-to-Careers Education. A.A., Red Rocks Community College, 1983

HANLIN, Jeffrey

Self-Paced Education Lead/Mathematics/LARC. B.A., Metropolitan State College of Denver, 1988; A.A., Red Rocks Community College, 1977

HAWKINS, Richard

Coordinator, OSHA Training Institute Rocky Mountain Education Center. B.S., Indiana State University, 1979

HULL, Mark

Job Developer, Job Placement and Cooperative Education
A.A., Arapahoe Community College, 1992

JOHNSON, Jane

Instructional Designer. Ph.D., University of Chicago, 1972; M.A., University of Chicago, 1972; B.A., Northwestern University, 1967

JULEFF, C.J.

Corporate Trainer, The Red Rocks Institute. B.A., Ripon College, 1974

KNEPLEY, Susan

Manager, Alternative Learning Center/LARC. M.Ed., University of Pittsburgh, 1969; B.A., Carnegie Mellon University, 1968

KRONBERG, Andrea

Interpreter, Services for Special Populations/LARC. B.A., Metropolitan State College of Denver, 1994; A.A.S., Front Range Community College, 1992

MACY, Dan

Educational Coordinator, Arvada Campus, M.A., University of San Francisco, 1993; B.A., San Jose State University, 1991; A.A., Foothills College, 1980

MAEZ, Yvette

Coordinator, High School Relations. B.A., University of Northern Colorado, 1988

MINDAK, Jean

Trainer, Corporate Learning Center, The Red Rocks Institute. M.A., St. Louis University, 1975; B.A., Fort Bonne College, 1957

O'NEILL, John

Telecommunications, Distance Learning/LARC
B.S. University of Wisconsin, 1982

OSBORNE, Laura

Corporate Trainer, The Red Rocks Institute. B.S., University of Colorado at Denver, 1987

PANKRATZ, Heather

Manager, Fitness Center. B.S., Colorado State University, 1993

PAYNE, Hobart

Small Business Development Center. B.S. University of Kentucky, 1950

PETERSON, Asheley

Educational Program Assistant, Mountain Center. B.A., University of Colorado at Denver, 1994

PETZOLD, Tracy

Counselor, Career Resource Center. M.A., University of Colorado at Denver, 1988; B.A., University of Wisconsin-Oshkosh, 1973

RAMOS, Catherine

Assistant Program Coordinator, School-Age Child Care.

REITER, Jayne

Director, Small Business Development Center. M.Ed., Colorado State University, 1995; B.S., Regis University, 1993

RUSSELL, Randy

ESL/International Student Programs Manager, Assessment Center. M.A., University of Colorado, 1989; B.A., Metropolitan State College of Denver, 1981

STEIN, Nancy

Self-Paced Education Lead, Alternative Learning Center/LARC. M.A., University of Northern Colorado, 1989; B.A., Metropolitan State College of Denver, 1987

UPTON, Dawn

Coordinator, Institutional Research and Planning. M.A.Ed./COUN., University of Phoenix, 1992; M.S., University of Oregon, 1987; A.G.S., Lane Community College, 1985

VOORHEES, Alice

Coordinator, COBE, The Red Rocks Institute. M.A., Arizona State University, 1982; B.A., Moorhead State University, 1975

WERNER, Jeanette

Customer Service Manager, OSHA Training Institute Rocky Mountain Education Center. B.A., Colorado Christian University, 1992; A.A., Colorado Christian University, 1989

Faculty**ALEXANDER, James**

Instructor, Criminal Justice. B.A., Central Washington State College, 1972

ALLEN, Jim

Professor, Physics. Ph.D., University of Wyoming, 1974; M.S., Louisiana State University, 1956; M.S. University of Southwestern Louisiana, 1954

ANDERSON, Daniel

Career Development Specialist, Career Resource Center. Ph.D., University of Northern Colorado, 1982; M.A., University of South Dakota, 1967; B.A., Huron College, 1963

ANDERSON, Kathleen

Instructor, Psychology. M.A., University of Texas, 1972; B.S., University of Texas, 1969

ARNDT, Susan

Professor, Art. M.A., University of Northern Colorado, 1975; B.A., Colorado State University, 1969

ARNSPARGER, John

Professor, Accounting and Computer Information Systems. M.B.Ed., University of Colorado, 1971; B.B.A., Ohio University, 1968

ATKIN, Barbara

Instructor, Chemistry. Ph.D., University of California-Berkeley, 1971; M.A., University of California-Berkeley, 1981; B.A., Elmira College, 1960

ATKINSON, Laurie

Instructor, Computer Information Systems. M.S., University of Colorado, 1991; B.A., University of Colorado, 1986

BADEN, Carol

Professor, Continuing Education for Health Care. M.Ed., Colorado State University, 1978; B.S., Texas Woman's University, 1961

BERMAN, Marjorie

Instructor, History and Humanities. Ph.D., University of Colorado, 1980; M.A., University of Colorado, 1974; B.A., Case Western Reserve University, 1972

BLACK, Niki

Instructor, English. M.A., University of Nevada-Las Vegas, 1980; B.A., University of Nevada-Las Vegas, 1976

BLACK, Timothy

Instructor, Criminal Justice. B.A., Western State College, 1965

BREECE, John

Instructor, Construction Technology. A.A.S., Red Rocks Community College, 1991; A.A.S./Electronics, Mercer County Community College, 1977; Licensed Master Plumber, State of Colorado

BROWN, J. David

Instructor, Sociology. Ph.D., University of Denver, 1994; M.A., University of Denver, 1988; B.S., Metropolitan State College of Denver, 1985

BRYANT, Linda

International Advisor/Career Counselor, Career Resource Center. M.A., University of Phoenix, 1992; B.A., Colorado Christian College, 1989; A.A., Red Rocks Community College, 1978

CAMY, Ann

Coordinator, Center for Teaching Excellence and Instructor, English. M.A., University of Northern Colorado, 1969; B.A., University of Northern Colorado, 1963

CARUOLO, Wayne

Instructor, Computer Information Systems. M.A., Webster University, 1978; B.S., Norwich University, 1970

COLLINS, Charlene

Professor, Business Technology. Ed.D., University of Northern Colorado, 1978; M.A., University of Northern Colorado, 1974; B.A., University of Montana, 1960; B.S., University of Montana, 1960

CONNOLE, Thomas

Librarian. M.A.L., University of Denver, 1974; M.A., University of Michigan, 1967; B.A., University of Colorado, 1966

DEWALD, Sherry

Instructor, Communications. M.A., University of South Dakota, 1977; B.A., University of Illinois, 1974

EDWARDS, D. Kerry

Instructor, Philosophy. Ph.D., Iliff School of Theology, 1989; M.A., Wycliffe College, 1981; B.A., Roberts Wesleyan College, 1977

ELRICK, Donald

Instructor, Biology. Ph.D., University of Colorado, 1976; B.A., University of Colorado, 1965

FEELEY, Thomas

Professor, Water Quality Management Technology. A.A.S., Red Rocks Community College, 1976

FELLOWS, David

Instructor, Accounting and Management. M.A., University of Northern Colorado, 1965; B.A., Michigan State University, 1961

FREENEY-HILTON, Mildred

Instructor, Sociology. M.Ph., Roosevelt University, 1974; M.A., Roosevelt University, 1973; B.A., Blackburn College, 1971

FREY, Norma

Instructor, Mathematics. M.A., Ohio State University, 1957; B.S., University of Nevada-Reno, 1954

GARROD, Candace

Instructor, Computer Information Systems. M.Ed., Colorado State University, 1992; B.Ed., Colorado State University, 1986

HILTON, Craig

Master Instructor. Construction and Energy Technology. Licensed Master Plumber

INGRAM, Verne

Instructor, Accounting and Business. M.A. University of Phoenix, 1994; C.P.A., 1980; B.S., University of Idaho, 1964

INTRERY, Linda

Professor, Mathematics. M.B.S., University of Colorado, 1985; B.A., University of Northern Colorado, 1977

JOHNSON, Cheryl

Instructor, Accounting and Management. M.B.A., University of Colorado, 1990; Ph.D., University of Colorado, 1986; M.B.E., University of Colorado, 1977; B.S., Colorado State University, 1969

JORDAN, Kathryn

Instructor, Medical Assistant. B.A., University of Colorado, 1977

JORGENSEN, Colleen

Instructor, Mathematics. M.S., University of Colorado at Denver, 1987; B.A., University of Northern Colorado, 1974

JOY, Carla

Professor, History. M.A., University of Denver, 1969; A.B., Loretto Heights College, 1967

KAYE, Steven

Instructor, Biology. M.Ed., University of Hawaii, 1984; B.A., University of Hawaii, 1981

KLINGER, Denise

Professor, Business Technology. M.B.E., University of Colorado, 1973; B.S., Oklahoma State University, 1960

KRIZNAR, David

Instructor, Electronic Digital/Computer Technology. A.A.S., Red Rocks Community College, 1990

KUNIMUNE, Mark

Instructor, Emergency Medical Services. B.A., Prescott College, 1992

LAHEY, Frederic

Instructor, Film/Video Technology. Program Director AVID Education Center. M.F.A., Columbia University, 1984; B.A., Columbia University, 1978

LEVINE, Kent

Professor, Real Estate and Business Law. J.D., Drake Law School, 1973; B.A., Western State College, 1970

LUKAVITCH, Terri

Instructor, Criminal Justice. M.A., University of Northern Colorado, 1986; B.A., University of Northern Colorado, 1978

MAXWELL, Thomas

Professor, Communications, English and Literature. M.A., University of Colorado at Denver, 1989; B.A., University of Colorado, 1967

MCCAMMACK-WELLS, Merrill

Instructor, Computer Information Systems. M.B.A., Indiana University School of Business, 1980; B.S., Indiana University, 1979

MEDINA, Julius

Professor, Drafting. M.Ed., Colorado State University, 1984; B.E., Colorado State University, 1977; A.A.S., Southern Colorado State College, 1966

MELCHER, Charles.

Master Instructor, Electronic Digital/Computer Technology. B.S., Weber State College, 1965

MENCHER, Pamela

Instructor, Communications, Speech and Theatre. M.F.A., University of Wisconsin, 1981; B.A., Montana State University, 1978

MILMOE, Becky

Instructor, Multimedia. B.F.A. University of Denver, 1985

NIEHOFF, Thomas

Instructor, Mathematics. M.S., University of Colorado at Denver, 1991; B.S., University of Illinois, Champaign-Urbana, 1981; A.A., Florida Junior College, 1977

NELMS, Michael

Instructor, Fire Science. B.A., University of Phoenix, Denver, 1989; A.A.S., Red Rocks Community College, 1988

NELSON, David

Professor, Geography, Humanities and Political Science. Ph.D., University of Denver, 1969; M.A., University of Denver, 1964; B.A., University of Denver, 1963

NELSON, Walter

Associate Professor, English and Literature. M.A., University of Missouri, 1971; B.A., California State University, Hayward, 1969

NIELSEN, David

Instructor, Computer Information Systems. B.S., Brigham Young University, 1977

NOTARIANNI-DITTO, Elissa

Instructor, Biology. Ph.D. University of Minnesota, 1985; B.S. Regis University, 1976

OLSON, Scott

Instructor, Environmental Compliance Technology. B.S., University of California, Los Angeles, 1985

ORTEGA, Judith

Counselor, Career Resource Center. M.A., University of Northern Colorado, 1980; B.A., Loretto Heights College, 1973; A.A., Red Rocks Community College, 1971

PADILLA, Francisco

Professor, Spanish. M.A., Regis University, 1992; B.A., University of Colorado, 1973

PEARCE, Clyde

Instructor, Radiology. M.Ed. Lesley College, 1991; B.S., Florida Atlantic University, 1976; A.S. Palm Beach Junior College, 1974

PLUMB, Donald

Master Instructor, Automotive Technology. A.A., Red Rocks Community College, 1977; A.S.E. Certified, World Class Technician, Member of Society of Automotive Engineers

REEVES, Richard

Instructor, Mathematics. M.S., University of Colorado at Denver, 1992; B.A., University of Colorado at Denver, 1990

REEVES, Terry

Instructor, Mathematics. M.S., University of Colorado at Denver, 1992; B.S., University of Oklahoma, 1989

ROBERTSON, James

Instructor, Art. M.F.A., Brigham Young University, 1990; B.A., Brigham Young University, 1981

ROSSTON, Julie Benson

Instructor, Speech. M.A., University of Montana, 1990; B.A., University of Minnesota, 1988

RUDDEN, Michael

Master Instructor, Welding Fabrication Technology.

SABELL, Haruko (Sunny)

Professor, Business Technology. M.A., Colorado State University, 1965; B.S./B.A., University of Denver, 1955

SAPIENZA, Leonard

Professor, English and Literature. M.A., University of Phoenix, Denver, 1991; B.A., University of Northern Colorado, 1959

SCHEIB, James

Professor, Economics. M.A., University of Colorado, 1969; A.B., University of Denver, 1963

SCHREIBMAN, Walter

Professor, Psychology. M.S., Purdue University, 1969; B.A., University of Colorado, 1967

SMITH, Charles

Instructor, Mathematics. M.A., California State Polytechnic College, San Luis Obispo, 1969; B.S., California State Polytechnic College, San Luis Obispo, 1968

SMITH, Marilyn

Instructor, English. M.A., University of Washington, 1977; B.A., University of Colorado, 1975; A.A., Pikes Peak Community College, 1973

SOMERS, Cynthia

Instructor, Chemistry. Ph.D., University of Washington, 1989; B.A., University of California, 1983

SPERLING, John

Master Instructor, Construction Technology-Fine Woodworking/Carpentry. B.S., University of Colorado, 1970; Real Estate Broker's License

SPILLYARDS, Joey

Instructor, Drafting. B.E., Colorado State University, 1987

STANESCO, John

Professor, Geology. M.A., University of Northern Colorado, 1974; B.A., Regis College, 1968

STEVENS, Douglas

Instructor, Electronic Digital/Computer Technology.

THATCHER, Gene (Rich)

Instructor, Construction Technology
Licensed Master Electrician

VAIANA, Michael

Associate Professor, Developmental Studies. M.A., Colorado State University, 1973; B.A., Colorado State University, 1970

Adjunct Faculty

Over four hundred part-time faculty, who are recognized as being highly proficient in their profession or trade, teach each semester and make significant contributions to the delivery of instruction by providing special expertise in their fields.

As the instructional programs and course offerings change, the adjunct faculty also changes; it is not feasible to individually list them. The college would like to take this opportunity to recognize the outstanding contributions made by our adjunct faculty who provide timely, quality instruction to Red Rocks Community College students.

Classified Staff

ANDERSON, John

Media Specialist IV, Learning Materials Center

ARCHULETA, Rene

Administrative Assistant III, Media and Community Relations

ARRIETA, Juan

Groundskeeper I, Physical Plant

ATENCIO, Ernie

Utility Worker I, Physical Plant

BAKER, Janet

Office Manager I, Science and Technology

BANA, Ronald

Plant Maintenance Supervisor I, Physical Plant

BLACK, Debra

Administrative Assistant II, Financial Aid

BLACKER, Marilyn

Library Technician III, Learning Materials Center/LARC

BROWN, Fredrick

Custodian I, Physical Plant

BURROUGHS, Bishop

Custodian I, Physical Plant

CALAHAN, Tamy

Human Resources Specialist, Human Resources

CARSON, Deborah

Accounting Technician II, Accounting Services/Cashier's

CHAVEZ, Gabriel

Groundskeeper II, Physical Plant

CHOU, Chi-Ping

Library Technician III, Learning Materials Center/LARC

COOPER, Kathy

Graphics Designer, Faculty Support and Development

CROCKOM, Thomas

Housekeeping Supervisor I, Physical Plant

DETRICK, Marilyn

Accounting Technician II, Accounting Services/Cashier's

DEROU, Michael

University Counselor III, Assessment Center/LARC

DRAKE, Michael

Accountant II, Accounting Services

EAVES, Jennifer

Custodian I, Physical Plant

ELLIOTT, Barbara

Administrative Assistant III, Arts and Business

ELLIS, Cherry

Administrative Assistant II, Small Business Development Ctr.

ESQUIBEL, Jose

Custodian I, Physical Plant

FABRIZIO, Carolyn

Accounting Technician II, Accounting Services/Cashier's

FLOYD, Tanya

Administrative Assistant III, Communication

FOSTER, Elizabeth

Publications Specialist I, Office of Student Life

FREDERICK, Robert

Custodian II, Physical Plant

FROST, Janet

Administrative Assistant III, Science and Technology

GARCIA, Anthony

Utility Worker II, Physical Plant

GEIST, Darrel

Mechanic Worker I, Physical Plant

GRAHAM, Virginia

Administrative Assistant III, Job Placement and Cooperative Education

GRASSE, Martina

Administrative Assistant II, Continuing Education for Health Care

GREEN, Lois

Administrative Assistant III, Arvada Campus

GRUBER, Darlene

Program Assistant II, President's Office

GUERRERO, Salvador

Housekeeping Supervisor I, Physical Plant

HAMILTON, Isaac

Custodian I, Physical Plant

HOFFERT, Janis

Administrative Assistant II

HOULE, Kelly

Early Childhood Educator II, School-Age Child Care

HUGHES, Diane

Administrative Assistant II

JASSO, Susan

Accountant II, Accounting Services/Payroll

JOHNSON, Mike

Groundskeeper I, Physical Plant

JONES, Mary J.

Accounting Technician II, Accounting Services

JONES, Patrick (Red)

Custodian I, Physical Plant

KERN, Connie

Administrative Assistant III, Assessment Center/LARC

KING, RuthAnn

Accounting Technician II, Accounting Services/Payroll

KIOLBASA, Kathy

Administrative Assistant II

KNOTT, Ginny

Administrative Assistant II, Science and Technology

KUMPF, Susan
Program Assistant I, Institutional Research and Planning

KUSHEL, Arlene
Administrative Assistant III, Office of Student Life

LEICHT, Linda
Network Analyst Intern, Computing Services

LOCKARD, Donna
Administrative Assistant II, Arts and Business

LUJAN, Ruben
Custodian I, Physical Plant

MADRID, ANNA
Data Specialist I, Human Resources

MANVILLE, Suzanne
Student Services Specialist I, Financial Aid

MARKIN, Marvel
Library Technician II, Learning Materials Center/LARC

MARTINEZ, Steve
Custodian I, Physical Plant

MAYA, Debbie
Accounting Technician II, Accounting Services

McLUER, Grete H.
Student Services Specialist I

MERCER, Willoughby
Police Officer III, Campus Police

MERRIMAN, Donna
Administrative Assistant III, Institutional Research and Planning

MOLL, Melodie
Administrative Assistant II, Institutional Research and Planning

NORDEN, Robert
Custodian I, Physical Plant

ORTEGA, Frances
Library Technician II, Learning Materials Center/LARC

OSCARSON, Rosalind
Administrative Assistant I, Institutional Research and Planning

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