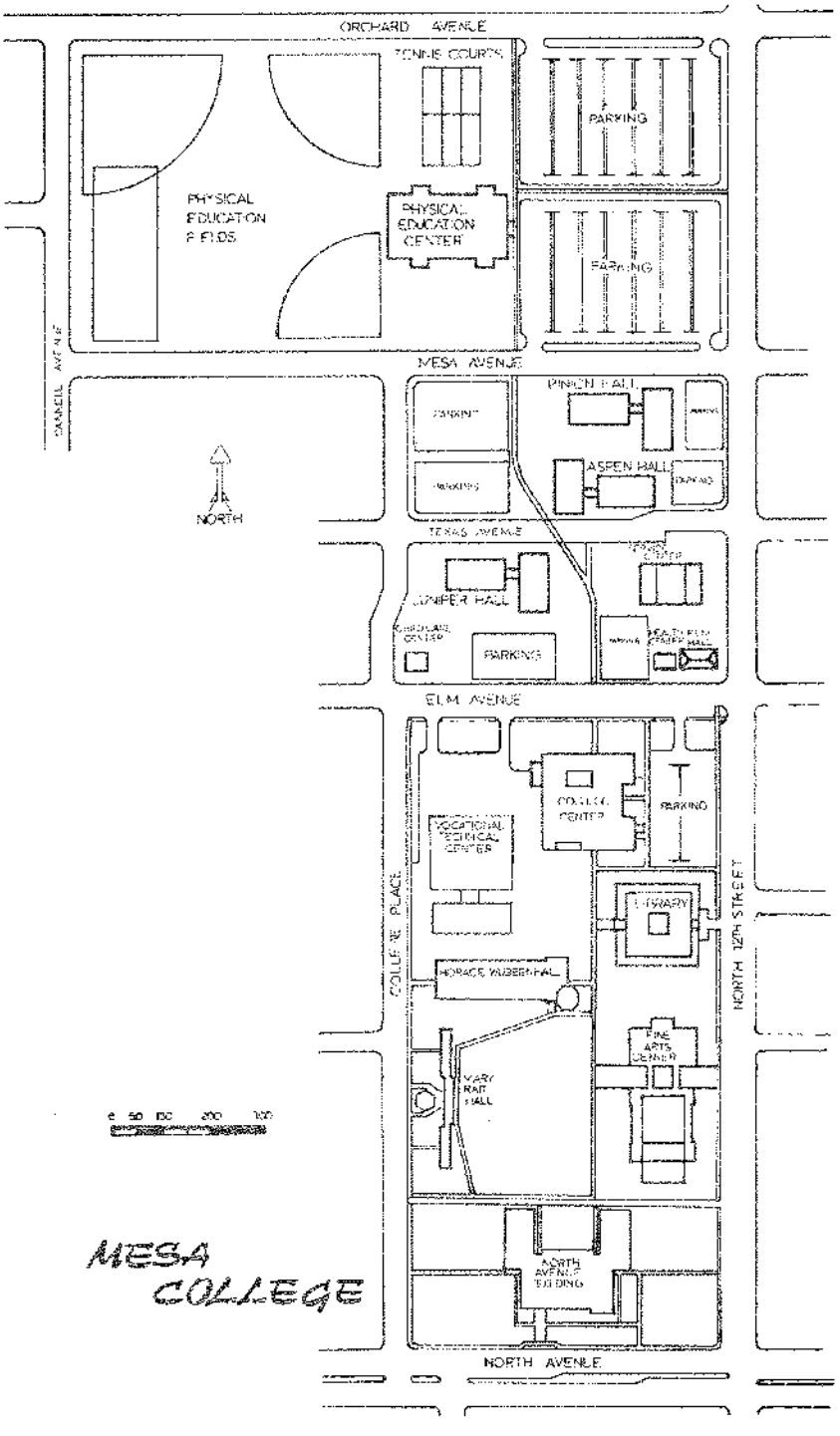
MESA COLLEGE

CATALOG

MESA COLLEGE
GRAND JUNCTION, COLORADO

1971-72

GRAND JUNCTION
COLORADO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MESA COLLEGE

Mesa College

CATALOG

1971-72

GRAND JUNCTION, COLORADO
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HOW TO APPLY FOR ADMISSION

Students Attending College for the First Time

1. Secure an Application for Admission form from your high school principal or from the Admissions Office at Mesa College.
2. Complete Part I of the Application for Admission; have your high school office complete Part II and forward the form to the Admissions Office at Mesa College. Applications may be filed at any time after the close of the first semester of the senior year in high school and must be in our hands by August 15 for Fall Quarter and two weeks in advance of registration for Winter and Spring Quarters. (See bottom of page 21.)
3. Upon receipt of your application and the $10 application fee (see page 21) the College will inform you of your admission status. (Admission status will be tentative until the record of the final semester of the senior year has been received.)
4. Physical Examination and Residence Affidavit must be on file in the Records Office before final acceptance is granted. These forms are sent to the student from the college after the application has been received.
5. A.C.T. scores must be in the Admissions and Records Office before final acceptance is granted. See your high school counselor for dates.
6. Students who must live away from home must make arrangements for and secure approval of their housing from the office of the Dean of Students.
7. Prior to registration each applicant will receive additional information and preliminary registration instructions and materials.

Transfer Students

1. File with the Admissions Office at Mesa College:
   a. The Standard Application for Admission form, Part I. (A $10 application fee must accompany the admission application. See page 17.
   b. An official transcript of all credits earned from each college or university previously attended. Failure to list all institutions previously attended may result in loss of credit and/or dismissal.
   c. An official report of A.C.T. Test scores. (Transfer students who have not taken these tests previously must make arrangements with the Admissions Office to take them prior to registration.)
   d. An official transcript from the high school attended.
   e. Physical examination and residence affidavit.

REGISTRATION AND COUNSELING TESTS

The college admission tests of the American College Testing (A.C.T.) Program are required of all new students prior to registration at Mesa College. It is recommended that prospective students take these tests during their senior year. The tests are available at designated centers throughout the state and region on five different dates.

A $6.00 fee must be submitted with a registration form to the Registration Department, American College Testing Program, P.O. Box 414, Iowa City, Iowa 52240, four weeks prior to the test date on which the student elects to take the test. A special residual test administration date will be arranged as a part of Fall and Winter Quarter registration periods for those who, for good reason, have not been able to take the test during one of the regularly scheduled national test dates. (A $10 test fee is charged on the residual testing date.) Detailed information regarding testing centers, dates, and registration supplies will be available through high school principals and counselors or from the Director of Admissions at Mesa College. College Board Scholastics Aptitude Test Scores (S.A.T.) are not required by Mesa College and will not excuse the student from the A.C.T. requirement. (See pages 23, 24 for further information.)

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College Calendar

1971-72

SUMMER SESSION, 1971

June 14	Registration for First Four-Week Term and Eight-Week Term
June 15	Classes Begin
July 9	First Four-Week Term Ends
July 12	Registration for Second Four-Week Term
July 13	Second Term Classes Begin
August 6	Summer Session Ends

FALL QUARTER, 1971

August 15	New Student Credentials Due
September 13, 14, 15	Faculty Workshop
September 15, 8:00 a.m.	Residual ACT Testing
September 16, 17, 18	Orientation and Registration Counseling for New and Transfer Students
September 20, 8:00 a.m. - 12:00 noon	Sophomore Advising
September 20, 21	Registration
September 22, 8:00 a.m.	Classes Begin
September 29	Last Day to Change Schedule
October 25, 26, 27	Midterm Examinations
November 24, 12:00 noon	Thanksgiving Vacation Begins
November 29	Classes Resume
December 6	Final Examinations Begin
December 10	Fall Quarter Ends

WINTER QUARTER, 1972

January 3	Residual ACT Testing
January 3, 8:00 a.m. - 6:00 p.m.	Registration
January 4	Classes Begin
January 12	Last Day to Change Schedule
January 31, February 1, 2	Midterm Examinations
March 14	Final Examinations Begin
March 17	Winter Quarter Ends

SPRING QUARTER, 1972

March 25, 8:00 a.m.	Residual ACT Testing
March 27, 8:00 a.m. - 5:00 p.m.	Registration
March 28	Classes Begin
April 5	Last Day to Change Schedule
April 24, 25, 26	Midterm Examinations
May 29	Memorial Day
June 5	Final Examinations Begin
June 8	Commencement

Foreword . . .

There is today throughout the land an increasing awareness of the importance of the community college. Under the pressure of rapidly increasing enrollment demands on all types of colleges and universities, the nation's educators are looking to the expansion of the two-year community college as a means of assuring educational opportunities for all college-age youth and also for adults. These opportunities include comprehensive college programs embracing traditional liberal arts, general education, and a rapidly growing number of vocational-technical curriculums designed to provide job training in pace with today's world of work.

Mesa College is a democratic community institution founded upon the principle that the community should provide education for all its members. It is organized to serve all who are eligible to attend and who can profit from its offerings, regardless of age or experience. It provides a cultural center for the community and recognizes its moral and social responsibility toward the students and adult population while it makes provisions for meeting educational and vocational demands made upon it.

FACILITIES, FACULTY, CLIENTELE

From a modest beginning in 1925 in a renovated former elementary school building, Mesa College's physical facilities have been developed steadily to accommodate a rapidly increasing enrollment. The growth in both enrollment and physical plant has been especially pronounced during the past ten years. The first permanent structure on the present campus, a large classroom building occupied in 1940, continues to serve an important function as an education facility. Through the years, many other buildings have been added to the campus. The most recent additions are the beautiful new Walter Walker Fine Arts Center and the Mesa College Area Vocational School. Other campus structures include Mary Rait Hall, Horace Wubben Hall, the College Center, four Residence Halls, the Child Care Center, the fine new Library Building, the College Services Building, and a spacious new Physical Education Center. (See General Information section for additional details.)

The well-qualified faculty, broad curriculum, and excellent plant facilities make Mesa College an intellectual, artistic, musical, and educational center for the western third of Colorado. It is the ambition of the college to participate in and to stimulate all types of advanced and continuation education and to assist in furthering cultural standards in this region.

Thousands of students have entered the college since its inception in 1925. Many have gone on successfully to complete their advanced degrees in colleges and universities of the United States. Many have terminated their formal education with graduation from Mesa College and have taken their places in the commercial, industrial, family, and community life—all much better equipped for having shared in college opportunities.

Mesa College is open to high school graduates and all others of sufficient maturity, experience and seriousness of purpose to enable them to benefit from its offerings.

MESA COLLEGE

PURPOSE

1. FOR ALL STUDENTS. To supply education for citizenship and enriched personal living for all students regardless of classification, by providing:

   General courses and group activities through which they are enabled to gain for themselves personal, social, civic and vocational competencies;

   A well-rounded education that develops within them a sound emotional and social balance and personal resources for continued intellectual growth;

   Assistance toward better understanding and appreciation of the values of art, music, literature and other cultural activities;

   Help in increasing their knowledge of economic principles, political institutions and historical trends and developments.

2. FOR OCCUPATIONAL TRAINING FOR EMPLOYMENT. To provide an appropriate variety of vocational and technical training for specific occupations and to offer opportunity to students desiring basic or extension training in a number of skilled trades.

3. FOR THOSE WHO PLAN FOUR-YEAR DEGREES. To provide two-year courses of study leading to entrance into the third-year class for those who are to continue their formal education in a senior college or university, in liberal arts or the professions.

4. FOR ADULTS. To provide opportunities for adults to participate in academic, cultural, recreational and vocational activities according to their needs, interests or desire to learn.

5. FOR THE COMMUNITY. To stimulate and lead the intellectual and cultural life of the community; to furnish programs for information and entertainment; to provide a center for participation in recreational activities; and to foster activities leading to civic, social, health, moral and educational improvement of the community.

CURRICULUM

The curriculum of Mesa College is designed to meet the needs of the students of the area which the college serves. It contains courses in arts and sciences that are the same as those offered during the first two years at the senior colleges and universities of the state, and also offers many specialized courses to meet local needs and demands. It is flexible so that continuous revision is possible. A curriculum committee of the faculty reviews suggestions for revision and makes recommendations for changes that it considers desirable. Courses are added or dropped according to the changing needs of the clientele of the college and to the social and industrial development of the community.

GENERAL INFORMATION

ACCREDITATION

Mesa College is fully accredited by the North Central Association of Colleges and Secondary Schools. Such accreditation places academic credits earned at Mesa College on a par with those earned at other accredited colleges and universities throughout the United States and assures their acceptance by these institutions. Students are reminded, however, that acceptance of transfer credits by any accredited college depends upon the individual student's presentation of a satisfactory academic grade average and certification by the Director of Admissions and Records of the former college that the student is "in good standing."

BUILDINGS AND EQUIPMENT

Mesa College is developing its campus according to a master plan designed in 1960, revised in 1966, and currently being updated to provide for the College's needs through the 1970's. Facilities include Houston Hall, Horace Wubben Science Hall, Library-Administration Building, Mary Rait Hall, College Center, Child Development Center, Physical Education Center, College Service Center, Walter Walker Fine Arts Center, Area Vocational School, and Aspen, Elm, Juniper, and Pinon Residence Halls.

Houston Hall, the first permanent building on the present campus, provides classrooms for Business, Data Processing, Home Economics, Humanities, and Social Science. In the future this building will undergo major remodeling to improve and increase its academic facilities.

The new Library Building, completed in Fall 1967, is a three-level building incorporating the latest concepts in library design, with a wide variety of study facilities. With open stacks available for up to 80,000 volumes, the college's book collection of 40,000 volumes is being increased at an accelerated rate. About 370 periodicals are currently received by the library. As the center of the academic program, the library provides facilities for a variety of learning experiences, including reading, viewing, listening, research, and group discussions. The first level of the building, intended ultimately for library expansion, is the college Administrative Office center, including the President's Office, Admissions and Records Office, Student Personnel Services, Business Office, and Public Information Office.

Mary Rait Hall, extensively remodeled during Summer 1967, includes classrooms, Audio-Visual and Duplicating departments, and other facilities on the first floor. The upper two floors provide office space for sixty faculty members and facilities for related secretarial and receptionist staffs.

The College Center Building, occupied in January 1962, contains a modern, fully equipped cafeteria, bookstore, study and recreational lounges for students and faculty, office and conference facilities for student government and activity leaders, a snack bar, game rooms, and listening rooms for recorded music.

The Child Development Center, located at Elm Avenue and College Place, provides facilities for Mesa College's vocational-technical program designed to train directors and personnel for child-care cen-

ters and also for the Division of Continuing Education's Parent Education and Preschool program. Classrooms, play areas, observation facilities, and office spaces are located in this building.

Shop laboratories for various Continuing Education courses are available in the Mesa College Area Vocational School facilities and on a rental basis, as needed, from the local school district and from private owners.

Three 200-student residence halls, occupied in 1966 and 1967, provide comfortable living quarters for boarding students. Most of the rooms are doubles, but a few singles are available. All rooms are furnished with modern wall-hung furniture to provide maximum comfort and flexibility. The design of these residence halls emphasizes an environment conducive to study.

The Physical Education Center, completed in Fall 1968, provides facilities for a variety of physical education and recreation activities. Major features include all-purpose gymnasium areas for both men's and women's physical education and for varsity basketball and wrestling; swimming and diving pools; locker and shower rooms; classrooms; and office space for the Division of Physical Education.

The College Service Center houses all types of equipment and shops used in general campus upkeep. It also includes areas for the Purchasing Department, central receiving, supply storage, and campus mail service.

The Walter Walker Fine Arts Center, occupied in September 1969, is the new cultural center of the campus. The beautiful structure includes facilities for art, music, and drama. The building features a multi-purpose Little Theatre, with seating capacity of approximately 700 when opened to include the alcoves, which at other times serve as smaller lecture rooms.

The first phases of the Mesa College Area Vocational School were completed in 1969. The two-section building houses modern shops and classrooms for auto mechanics, auto body and fender, welding, electronics, and audio-visual and graphic-communications departments. The school serves both youth and adults of the region as a training center for various technological and vocational occupations.

LOCATION

Mesa College's main academic campus is bordered by North Avenue, Elm Avenue, Twelfth Street, and College Place, about one and one-quarter miles north and east of Grand Junction's nationally famous Downtown Shopping Park. Other campus developments extend northward to Orchard Avenue and thence westward to Cannell Avenue. The residential section in the vicinity of Mesa College is attractive and modern. Several stores and other conveniences are located within walking distance of the campus, and many others, including a large new shopping center, are located along North Avenue.

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoorsman. Many Mesa College activities involve the physical advantages of the region. Among these activities is the College's physical education program in skiing, which is conducted at the new Powderhorn-on-Grand Mesa Ski Area. Qualified instructors, a variety of lifts, and miles of excellent trails combine to make the ski area a valuable adjunct to the College's Winter Quarter program. Students also take advantage of the city's parks,

golf courses, and swimming pools and the numerous outdoor attractions to be found in the nearby mountains.

LINCOLN PARK

Directly to the south and east of Mesa College across North Avenue is the beautifully landscaped Lincoln Park, the recreation center of Grand Junction. The park includes a green-turfed football field and a quarter-mile cinder track. Other physical facilities include a baseball diamond and stands, eight concrete tennis courts, a nine-hole golf course with grass fairways and greens, all available to college students. Lincoln Park is the site of the annual National Junior College Athletic Association Baseball Tournament.

ENROLLMENT

Mesa College's regular day school enrollment for Fall Quarter 1970 was 2,197, consisting of 1,513 freshmen and 667 sophomores. Eighteen students were unclassified. There were 869 men and 643 women in the Freshman Class, and 437 men and 230 women in the Sophomore Class. The geographical distribution of these students was as follows: 1,073 were from the Mesa College District; 1,002 were Colorado residents other than from the Mesa College District; 122 were from out of state, including six students from foreign countries.

In addition, 1,029 students enrolled in one or more classes in the Continuing Education Program (night school) during Fall Quarter 1970. The courses offered include both degree-credit courses as well as non-credit courses designed primarily for adults. In its role as a community college, Mesa College thus served a total of 3,226 persons during Fall Quarter 1970.

CAMPUS PARKING

All students and members of the College staff wishing to park on campus must register motor vehicles with the College Business Office. Parking permit stickers restricting the parking of motor vehicles to specified areas on campus will be issued at the time of registration or at the time a student acquires an automobile or changes automobiles.

College-Community Relations

Through mutual cooperation with the community, Mesa College has become a real cultural center, an integral factor in the educational and social development of Western Colorado. Faculty members are available for lectures and discussions on a wide range of subjects related to education, agriculture, homemaking and current social problems. Student groups appear often before public or private audiences for information or entertainment. The public is invited to attend many types of programs at the College—musical, dramatic, forensic, religious, and those devoted to public affairs and international relations—presented by faculty, students, community members, and out-of-town speakers.

At various times throughout the year, students and faculty members participate in radio and television panels and other types of programs to keep the community informed of activities at Mesa College.

Book reviews, play readings, lectures, conferences, demonstrations and musical programs are presented at the College from time to time by members of the community, for the students and the public. The churches of Grand Junction all cooperate with the College in meeting the needs for religious education among the students. Opportunities include participation in student classes in Sunday Schools, young people's organizations, and in choirs.

Student Personnel Services

COUNSELING AND GUIDANCE

At Mesa College, each student is provided with opportunities for continuous guidance and counseling. This service includes academic, social, vocational and personal counseling.

The guidance program begins when freshmen and transfer students first arrive on the campus. Each student is assigned to a faculty advisor on the basis of his vocational and major subject interest. This person continues as the student's advisor as long as he is in college unless he asks to be transferred to another advisor. During the school year, the advisor helps the student register, basing his assistance on the student's preferences, previous records and standardized test scores. He also discusses with the student the college or vocational choice to be selected when ready to leave Mesa, and will help plan transfer of credits or entrance into a vocation.

Counseling services are available for all students of the College. These services provide an opportunity for students to receive help in determining their abilities, aptitudes and interests. A full-time counseling service is available for students who are having difficulty in making satisfactory adjustment to college life either personally or socially. Regardless of the counseling situation, the student is assured of friendly, confidential aid.

Any student needing personal, educational, or vocational counsel is encouraged to see, at any time during regular office hours, the Dean of Students, the Associate Dean of Students, or any other member of the professional counseling staff. All counselors' offices are in the Student Personnel Services Center located on the terrace level of the Library Building. In addition, the College also provides the services of a Chaplain for those students seeking guidance on religious and spiritual matters. The office of the College Chaplain is located in the Student Health Services Building.

Representatives from the different branches of the military service frequently visit the campus to offer their counseling service. Qualified junior college graduates are given the opportunity to participate in one of the R.O.T.C. Programs offered at the four-year institutions. Students who are selected must attend a summer training program between their sophomore and junior years. This is an opportunity leading to a commission in the military service.

Mesa College is small enough to offer students the opportunity to know instructors personally. Instructors are interested in and willing to help other students as well as their own advisees.

Parents and students are invited to come to the office at Mesa College during the summer. At any time during office hours they will find some person competent to answer their questions.

STUDENT LOANS

Several kinds of loan funds are provided by Mesa College to assist students with their college expenses. Generally, eligibility for a student loan is based on financial need.

Mesa College participates in the National Defense Student Loan, the Federal Nursing Student Loan, and the United Student Aid programs. These loan programs provide important long-term loan funds from which qualified students can borrow sizeable amounts of money at low interest, repayable after the student completes his college education.

In addition, the College provides short-term and intermediate-term loan funds from which students may borrow to help meet financial obligations more temporary in nature. By definition, short-term loans are limited to a maximum of $50 repayable within 60 days or by the end of the quarter, whichever comes first. No interest is charged, but a small service charge is made. Intermediate-term loans are repayable within six months or, in any event, not later than September 1 following the date of the loan. Loans in this category are limited to $300 with simple interest charged at five per cent plus a $1 service charge.

The MESA COLLEGE SCHOLARSHIP DEVELOPMENT FUND, INC. conducts a drive annually to raise funds for scholarships and student loans. The scholarships provided by this group amount to $50 per quarter and are awarded periodically during the academic year. This organization also serves as a receiving and clearing agency for many of the College's established scholarships and student loan funds as well as for scholarships received from organizations and clubs from other communities.

For the most part, funds available for the short-term and intermediate-term loans have been made available as a result of the efforts of this group and the generous contributions of individuals and organizations of the Grand Junction area.

SCHOLARSHIPS

Mesa College annually awards a large number of scholarships. These scholarships are awarded primarily on the basis of scholastic achievement, but include the recommendation of the high school counselor or principal, and give some consideration to the financial resources of the student's family.

Normally, scholarships cover the cost of tuition or some fees. Application deadline is March 15. No scholarship application will be considered complete and processed unless the applicant has been accepted for admission, and has American College Test (ACT) scores on file with the Admissions Office. The American College Test must be taken no later than the February testing date if test scores are to be received by the College prior to the March 15 deadline.

The principal types of scholarships offered by the College are the following:

(1) THE MESA COLLEGE SCHOLARSHIP — This is a two-year scholarship. Approximately twenty-five of these scholarships are awarded to graduates of Colorado high schools each year. They are awarded to those students with the highest scholastic records among the scholarship applicants to Mesa College.

(2) THE MESA COLLEGE ACHIEVEMENT AWARD. This is a one-year (freshman) scholarship. It is the policy of the College to make at least one of these scholarships available to the graduates of each of the high schools of Western Colorado provided the student achieves a cumulative grade-point average of 3.0 (B) or higher by the end of the freshman year. He may apply for a sophomore scholarship which, if awarded, is valued at $50 per quarter.

(3) ACADEMIC DIVISION SCHOLARSHIPS. Each academic division of the College awards one or more scholarships. These are awarded to the outstanding scholars in each division at the end of their freshman year for use as tuition waivers during the sophomore year.

(4) SUPPLEMENTAL SCHOLARSHIPS. Each quarter a number of scholarships amounting to $50.00 per quarter are awarded to students who have achieved the minimum 3.0 grade point average who have

not previously received a scholarship. Applications are submitted immediately following mid-term examinations, and scholarships are tentatively awarded prior to the completion of the quarter pending maintenance of the 3.0 average through final examinations. The scholarship then becomes effective for the subsequent quarter.

In addition to the institutional scholarships described above, many scholarships and awards have been established for students of the College by private individuals and organizations of the Grand Junction area. The amounts of these awards vary but all are designed to apply toward tuition and fees.

GRANTS-IN-AID

GRANTS-IN-AID are awarded to students who have special talents in athletics, music, or art, and to scholastically capable students who have exceptional financial need. In addition, a number of grants-in-aid are made available for disadvantaged students and students entering vocational-technical curriculums.

EDUCATIONAL OPPORTUNITY GRANTS (EOG) are available to exceptionally needy students who wish to attend Mesa College. These grants were made available under Title IV of the Higher Education Act of 1965. Under this program, students from low-income families who have exceptional financial need may receive an outright grant of from $200 to $1,000. The amount of grant is geared to the parental contribution but may not exceed one-half of the student's total financial need, exclusive of any assistance under the College Work-Study Program.

ATHLETIC GRANTS-IN-AID equivalent to tuition and some fees are awarded each year to approximately 80 freshmen and sophomores who have excelled in various sports, either as high school seniors or freshmen at Mesa College. These awards are made by the Department of Intercollegiate Athletics of the College.

FEDERAL STUDENT AID PROGRAMS

Mesa College participates in many of the Federal Student Aid Programs. These include: (1) The National Defense Student Loan Program, (2) The Nursing Student Loan Program, (3) The Educational Opportunity Grants Program, (4) The Nursing Educational Opportunity Grants Program, and (5) the College Work-Study Program.

Financial need to pay for educational expenses is an essential requirement to qualify for assistance from any of these programs. Students who must have financial aid in order to secure a college education are encouraged to contact the financial aids office of the College for necessary information and application forms.

Since financial need is the primary requirement for determining eligibility for assistance under any of the Federal Student Aid programs, Mesa College requires that the student applicant submit either the Parents' Confidential Statement (PCS) of the College Scholarship Service or the Family Financial Statement (FFS) of the American College Testing Program. These forms should be available at either the high school principal's or counselor's office.

There is no deadline for submitting applications for any of the Federal Student Aid Programs, however, those students who have all application requirements complete and on file with the Admissions Office and Financial Aids Office by March 15 will receive priority. This includes, in addition to submitting either the PCS or FFS, as described above, a completed application for admission including American College Test (ACT) scores, and a completed application for financial aid on the special form provided by the Financial Aids Office of the College.

EMPLOYMENT

Part-Time Employment. The Office of Student Personnel Services operates a job placement service to assist students who work part time to help pay for their college expenses. Applications for such employment should be obtained from, and filed with, the Office of the Director of Student Financial Aids immediately following registration. Students will then be notified as steady part-time jobs become available.

Part-time employment, while attending college, is also available in each of the academic divisions and special services or agencies of the college. Application for such employment is made directly to the heads of the academic divisions or to the directors of special services. Mesa College also participates in the Federal College Work-Study Program. Under this program, the college plans to employ approximately 100 students at an average part-time salary of about $400 for the three quarters of the academic year. The purpose of the College Work-Study Program is to provide financial assistance for academically qualified students who must have financial help toward meeting necessary college expenses.

To insure securing assistance under this program, prospective students should file applications with the Office of Financial Aids not later than June 15.

Terminal Placement Service. Each year many students qualify to seek employment upon graduation or completion of a specific course of study, particularly in the vocational-technical areas. A placement service is available to students through the College Placement Office. Credential files are prepared for all students desiring placement assistance. The placement officer maintains contacts with appropriate business and industrial firms and arranges interviews both on and off campus between prospective employees and employers.

STUDENT HEALTH SERVICES

Mesa College provided health services for all students. These include the part-time services of a medical doctor and the full-time services of a registered nurse. The type of services provided include first aid, treatment and prescription of drugs for common illness, dispensing of simple medicines, recommending proprietary drugs, consultation concerning health problems including referrals to physicians and dentists, conducting health surveys, calling on students reported ill who reside in campus housing, and visiting students confined in local hospitals.

In addition, the college provides an excellent Blue Cross and Blue Shield student accident and sickness insurance plan. This plan is mandatory for all students, but carries a special waiver provision for those students who already are covered under family or other insurance plans. The plan protects the student twenty-four hours per day at school, at home, or while traveling during the school year, including interim vacation periods.

Students entering Mesa College for the first time are required to present a certificate of good health signed by a family physician or a physician approved by the College. Expense of this examination is borne by the student. Health examination blanks are available at the College Admissions Office.

HOUSING

General Policy — Mesa College believes that its students will have their best opportunity for a well-rounded educational experience while living in a supervised residence hall designed for student living. Mesa College also believes that if residence hall facilities are not available for all students, or in the instances where exceptions have been made

(as explained below) off-campus housing facilities should be specifically approved and supervised by the College before students commence occupancy therein. Therefore, Mesa College has adopted the following rules with reference to housing of its students:

(1) To the extent that vacancies are available, all students shall live in college residence halls unless permission is granted by the Director of Housing for them to live off campus.

(2) Students who cannot be accommodated in the residence halls at the time of registration and who are not excepted by the Dean of Students on one of the bases given below, are required to move into a residence hall upon notification by the College that space therein is available.

(3) Students who live with their wives or husbands, or with their parents in Grand Junction or its vicinity, shall register their housing in the office of the Director of Housing prior to the commencement of each academic year and in the event of a change in address during the year.

(4) Students otherwise eligible to live on campus but whose health conditions demand special services and living conditions or whose part-time employment prohibits their securing meals regularly in a college food service facility, or whose relatives make available their homes at a considerable saving to the student on room and board must secure permission from the Director of Housing to live off campus.

(5) All students living off campus, except those specified in paragraphs (3) and (4) above, will be directed by the Director of Housing to, and shall live in, privately owned housing approved by the College.

General Requirement. A housing deposit of $50 is required of both men and women who live in College residence halls. Room reservations in College residence halls will be assigned in the order in which signed contracts and room deposits are received. Upon occupancy of the room for the first quarter enrolled, $25 of the $50 room deposit will be credited toward payment of room rent for the quarter. The remaining $25 will be held in escrow until such time as the student terminates his housing in the residence hall. If all provisions of the housing contract have been complied with, and no damage charges have been assessed, the $25 deposit will be refunded to the student at the end of the college year, or at the end of the last quarter in attendance. The housing and boarding contract is a contract for the full academic year payable on a quarterly basis. Normally, no student will be permitted to break the contract unless the student is getting married, has special health problems, or is terminating his enrollment at the College.

The College reserves the right to alter board and room charges upon thirty (30) days notice prior to the scheduled date of registration for any quarter.

Off-Campus Housing. Students who cannot be accommodated in college residence halls will be granted permission to live off campus provided their housing is approved by the Director of Housing. Normally, permission will be granted for a student to live with a relative or to work in a private home for his board and room.

Students of legal age (21 years) will be permitted to live in College-approved off-campus housing unless vacancies exist in the College's residence halls.

Any student planning to live off the campus must first receive permission to do so from the Director of Housing.

If the student is single and under 21 years of age, permission will not be granted except for reasons justifiable to College officials.

Any student who is discovered in violation of housing regulations by living off-campus without permission, or who is found living off campus in housing which has not been approved by the College, may be subject to suspension from the College.

Changes in the location (address) of a student's housing must be reported to, and approved by, the Director of Housing. Students requesting information about housing, either on or off the campus, should contact the Office of Student Personnel Services.

Refund on Housing and Boarding Contract. A room reservation in College housing will not be confirmed until the $50 room deposit has been received. Once a contract is signed and the $50 room deposit made, failure to notify the Housing Director of cancellation after August 15 will result in forfeiture of the entire $50 deposit. If the reservation is cancelled prior to August 15, full refund of the $50 deposit will be made.

No refund on the housing and boarding contract will be made to a student who voluntarily withdraws from the College during a quarter. In emergency cases, necessitating withdrawal from the College, refund of board will be made, prorated according to the number of weeks remaining in the quarter. No refund for room rent will be made in such cases, however. Refund of the $25 deposit held in escrow will be made as described above.

Expenses at Mesa College

BOARD AND ROOM (See note on page 18.)

Board and Room for the 1971-72 academic year, for both men and women, in College-owned and operated residence halls is $971.80 including tax on meals payable each quarter at registration time as follows:

Fall Quarter $347.60; Winter Quarter $311.60; Spring Quarter $311.60; Total for the year $971.20.

The above charges include three meals per day at the College Cafeteria with second helpings permitted at any meal except that only two meals are served on Sundays.

For those students who are permitted to live in rooms off the campus, the cost of rooms depends upon the type of accommodations provided, and ranges from $30 to $60 per month. Since board and room in private homes is very difficult to obtain, and since the cost of meals off the campus is quite expensive, the College Cafeteria offers a special quarterly meal plan which costs the student $197.60 for Fall Quarter, $176.80 for Winter Quarter, and $178.80 for Spring Quarter. Total for the year is $551.20 including tax. This includes three meals per day with second helpings permitted at any meal except that only two meals are served on Sundays, as described above for students who live in College residence halls.

Refunds on Board at College Cafeteria

Students who elect the special Cafeteria quarterly meal plan of $197.60 for the Fall Quarter, $176.80 for Winter Quarter, and $176.80 for Spring Quarter are subject to the same refund conditions as are described for students who live in the College residence halls. Students who are requested to withdraw from the College by College authorities, or who have to withdraw because of emergency conditions, normally will be given refunds for board prorated on the basis of the number of weeks in the quarter.

BOOKS AND SUPPLIES

Text books, notebooks and school supplies are sold at the College Bookstore. Cost of needed books and supplies will vary according to the courses taken by the student but ought not to exceed $150 for the year. Some saving may be realized by buying used books which may be available in limited quantities. Nursing students will have additional costs of uniforms and transportation to and from hospital training centers.

TUITION AND FEES

The tuition and College fee applicable to the 1970-71 year were under study at the time of this printing and final figures on probable increases for 1971-72 were not available. The charges for 1970-71 are indicated below, and students are advised to plan on the probability of 10 to 15 per cent increases to help meet increasing costs to the College. Colorado state authorities have indicated that at least 15 per cent increases in tuition are anticipated at all state institutions of higher learning.

Tuition and Fee Schedule (1970-71):

COLORADO RESIDENTS	Mesa College District	Out of District
Tuition	No charge	$ 50 per Quarter
College Fee	$ 85 per Quarter	$ 85 per Quarter
Total	$ 85 per Quarter	$135 per Quarter
NON-RESIDENTS		
College Fee		$ 85 per Quarter
Tuition		$260 per Quarter
Total		$345 per Quarter

Refunds on Tuition and Fees

If a student withdraws within ten days from the first day of classes, two-thirds of the tuition, and two-thirds of the College Fee may be refunded. No refunds will be made after the tenth day from the date of registration.

APPLICATION AND EVALUATION FEE

Application and Evaluation Fee (Non-refundable) $10
(Valid only for quarter for which student is first admitted.)

PRIVATE AND SPECIAL INSTRUCTIONAL FEES

Where private and special instructional services are required additional charges will be incurred by the student. These fees are payable in advance to the instructors and vary with the types of instruction, individual instructors, and other circumstances.

Private instruction in applied music is available through the College and from instructors approved by the College. Cost of this instruction is $35 per quarter for one lesson per week. Other special instructional services available at extra cost include bowling, golf, skiing, etc.

EVENING SCHOOL FEES

Evening class fees vary as to subject, time, and materials required, usually in accordance with the rates listed below for part-time students. Day school students who pay full day school tuition and fees will not be charged extra for evening classes, except where a special material fee is required by the class.

MISCELLANEOUS FEES

Late registration, $10 first day, $5 each additional day, maximum	$30.00
Change in schedule	2.00
Graduation (cap, gown, diploma)	7.50
Late petition for graduation	1.00
Late credential fee	3.00
Aquatics Fee (swimsuit and towel)	2.00

PART-TIME STUDENT FEES

Students taking a part-time course are charged a class fee of $8 per quarter hour for Mesa Junior College District residents, $12 per quarter hour for Colorado residents who do not live in the district, and $30 per quarter hour for non-residents of Colorado. A part-time course consists of fewer than 12 quarter hours.

PAYMENT OF FEES

All tuition and fees are due and payable at the time of registration —the first day of each quarter—and registration is not complete until the student's obligation is met in full. Any student who enrolls and attends classes is liable for payment of fees even though he may drop out of school. No student having unpaid financial obligations of any nature due the College shall be allowed to graduate or to receive any transcript of credits.

The College reserves the right to adjust any and all charges, including fees, tuition, room and board, etc., at any time deemed necessary by the Governing Board.

DETERMINATION OF RESIDENCE STATUS FOR TUITION PURPOSES

Residence status for tuition purposes at Mesa College is based upon the requirements as prescribed and approved in H.B. 249 by the Colorado Legislature in 1961 and amended in 1965 for Colorado Public Institutions of Higher Learning. Basic requirements are summarized below.

In-State Residence

1. If an adult, upon moving to Colorado, is employed on a full-time basis, and files for the payment of Colorado state income taxes or files estimates of such taxes, and renounces his residency in any other state, and is not himself in the state primarily as a student, his minor children and wife may at once be classified at the in-state rate, so long as he continues his Colorado domicile.
2. An unemancipated minor shall qualify for a change in status only if his parents or legal guardian or person having legal custody shall have completed the requirements for establishing domicile as defined in Item 1 above. An emancipated minor or adult student who has registered AS A FULL-TIME STUDENT for more than EIGHT hours per term shall not qualify for a change in his classification for tuition purposes unless he shall have completed twelve continuous months of residence while not attending an institution of higher learning in the state or while serving in the armed forces.
3. Residence in the state primarily for the purpose of attending an institution of higher learning does not apply toward the time required for the establishment of legal residence.

In-District Residence

1. Establishment of a bona-fide residence within the Mesa College District on the part of the parent or legal guardian at any time prior to the designated registration date will be the basis on which In-District Residence Status will be granted for minor children.
2. In-District Residence Status for the emancipated minor or adult student requires residence within the state for twelve months (as in #2 above) including 90 days residence within the Mesa College District immediately preceding registration.

General Interpretations

1. In all cases residence of the student under 21 years of age, (including married male students) will be that of the parent or legal guardian (except that the residence status of a married woman will be based upon that of her husband). Exceptions to this rule will be granted only when the parent or guardian has relinquished all responsibility for, or claim on, the student via due legal proceedings and a court order.
2. Residence of the student 21 years of age or over will be based upon the student's own status in accordance with the above regulations; or upon the status of the husband (not the wife) in the case of married students where such husband may qualify for residence status in accordance with the above regulations.
3. Once In-State or In-District residence is established it shall not be lost until the close of the current regular academic year by virtue of removal from the state or district by parent, legal guardian or spouse.

A notarized residence affidavit signed by the parent or legal guardian of each minor student, or by the student, if over 21, is required before final acceptance is granted.

STUDENT ACTIVITIES

Mesa College offers an extensive and varied program of extra-class activities in which all freshmen as well as sophomores are eligible and encouraged to participate.

The Student Body Association is governed by elected representatives organized into a legislative body known as the Student Cabinet. The Student Cabinet, operating within the framework of a formal constitution, provides a broad program of social, educational, and cultural activities for all students of the college.

In addition, the College provides a comprehensive program of activities including intercollegiate athletics, intramurals, drama, forensics, and numerous art and music groups in which interested students are encouraged to participate.

The Lectures and Concerts Committee, supplemented by the Student Cabinet, bring several nationally-known artists and lecturers to the campus each year to provide entertainment and educational and cultural enrichment to the faculty and student body.

The College does not have a system of social fraternities and sororities, but provides a large number of service and special interest clubs and organizations which offer all students the opportunity to participate as an integral member of a special group in which they have common interests.

Three junior college honorary groups have chapters on the Mesa College campus. They include Phi Theta Kappa, the national junior college honor fraternity for students with high academic achievement; Phi Rho Pi, a non-social national honorary forensic society for students who participate in college-sponsored speech competition; and Delta Psi Omega, an honorary dramatic fraternity for students who have contributed to the production of college plays and musicals.

The College Center Building provides offices for student government and student publications, and serves as a cultural, recreational, and social activity center available to all students. In addition, the Center includes the College Cafeteria, Snack Bar, and Bookstore.

Organization for Instruction

Mesa College offers programs of three general types:

1) Those offered by the nine Academic Divisions,

2) Those of a Vocational or Technical nature, and

3) Those offered through the Division of Continuing Education to serve the adult needs of the community.

The nine academic divisions of the College and the subject areas included in each are indicated below:

The Division of Biological Sciences and Home Economics: agriculture, biology, botany, forestry, home economics, zoology.

The Division of Business: accounting, general business courses, secretarial sciences.

The Division of Fine Arts: art, drama, music.

The Division of Health Programs: courses for the associate degree program in nursing, and supervision of a medical office assistant program and a program for practical nursing.

The Division of Humanities: education, English, literature, philosophy, reading, speech, and foreign languages.

The Division of Mathematics and Engineering: mathematics and engineering.

The Physical Education Division: physical education theory and activity courses for both men and women.

The Division of Physical Sciences: chemistry, geology, astronomy, archaeology, and physics.

The Division of Social Sciences: anthropology, economics, geography, history, political science, psychology, and sociology.

Vocational-Technical programs of the College are found in a separate section of the catalog and include offerings in the following fields:

Associate Degree Professional Nursing; Audio-Visual and Graphic Communications Technician; Auto Body and Fender; Automotive Mechanics and Technology; Child Care Center Director; Data Processing; Electronics; Engineering Technician; Geologic Technician; Job Entry in Business; Library Technician; Medical Office Assistant; Police and Fire Service; Practical Nursing; Secretary, Legal or Scientific; Travel and Recreation Management; Welding.

The program for the two years at Mesa College will depend upon what the student plans to do at the end of two years. For those who plan to continue college work in a four-year college or university the courses in liberal arts, which are equivalent to such first- and second-year courses at higher institutions of the state, are required. Certain definite lower-division requirements are met by the courses leading to the Associate in Art or the Associate in Science degree. Other courses will depend upon the field in which the student's major interest lies, but will consist of such as fit into the student's planned program to be followed in the junior and senior years.

For those who do not plan to continue beyond the junior college, several non-specialized programs are offered. These provide for a broad training and liberal choice of electives. For those who desire to prepare for a specific vocation, guidance is given in selecting the appropriate course for such preparation.

In recent years Mesa College has given increased attention to providing programs of Vocational and Technical Education for students who do not plan, at least immediately, to complete a four-year degree. These specialized programs of a terminal, technical, or semi-professional nature are designed to help students develop the specific skills required for employment in the various technical occupations for which the training is offered.

A program of Continuing Education is designed to provide opportunities for adults to receive both academic and vocational preparation in various fields. Related training in several apprentice trades is given through the program.

MESA COLLEGE RESERVES THE RIGHT TO WITHDRAW FROM ITS OFFERINGS ANY COURSE WHICH THE ENROLLMENT DOES NOT JUSTIFY GIVING, FOR ANY PARTICULAR QUARTER. ADDITIONAL COURSES WILL BE ADDED ANY QUARTER IF THERE IS SUFFICIENT DEMAND.

ADMISSIONS INFORMATION and GRADUATION REQUIREMENTS

ADMISSION TO MESA COLLEGE

Admission to Mesa College is granted upon the filing of an application for admission and the presentation of satisfactory credentials. All applications must be filed upon the official forms available at the College, or, for Colorado residents, at the office of the high school principal. A $10 evaluation fee must accompany the admission application.

Colorado high school graduates who have completed satisfactorily a minimum of fifteen acceptable units of high school work are eligible for admission to the freshman class. The application for admission, which includes a transcript of the high school record properly filled out and signed by the high school principal, should be on file in the Admissions Office not later than August 15 for the Fall Quarter. As the number of approved applicants approaches the planned capacity for the Fall Quarter this deadline may be advanced to on or near August 1. Applications for admission for the Winter and Spring Quarters should be on file in the Admissions Office not later than two weeks prior to the beginning of the quarter.

OUT-OF-STATE RESIDENTS

Applicants who are not residents of Colorado and who are entering college for the first time must rank in the upper two-thirds of their high school graduating class to be eligible for admission to Mesa College.

TRANSFER APPLICANTS

An applicant for admission who has already attended another institution of college rank may not disregard his collegiate record and apply for admission as a first-time freshman.

Transfer students (Colorado residents) who may be on probation or suspension from the institution previously attended cannot be admitted until they have been approved by the Admissions Committee. In such cases the applicant must address a written petition to this committee describing the circumstances leading up to the probation or suspension status and any significant changes in these circumstances that would indicate that a successful record might be established at Mesa College. Out-of-state transfer applicants must be in good standing at the collegiate institution most recently attended to be eligible for admission to Mesa College.

ADVANCED PLACEMENT

The college will recognize unusual secondary school work by means of advanced placement for those who have taken especially enriched or accelerated courses before entering college. Applicants ordinarily qualify for such placement by satisfactory achievement on placement examinations prepared or approved by respective departmental staff members. Further information may be obtained by writing the Admissions and Records Office.

ADMISSION TO ADVANCED STANDING

Students honorably dismissed from other colleges or institutions may be admitted to advanced standing in Mesa College. Students applying for advanced standing will furnish to the Admissions Office a transcript of all college work sent from each institution attended. Transfer students will be required to take the ACT test prior to registration unless the test has been taken previously and an official record of the scores is on file with the Director of Admissions. Such test scores are not a regular part of the official transcript and are released by the student's former school only at the student's specific request. A high school transcript is required of all transfer students.

HEALTH CERTIFICATE AND RESIDENCE AFFIDAVIT

Students entering Mesa College for the first time are required to send a certificate of good health signed by a family physician or a physician approved by the college. This certificate is available at the college office.

Each student is required to file a notarized residence affidavit at the time he first registers at Mesa College for the academic year. This affidavit is to be signed by the parent or legal guardian of each minor student, or by the student, if over 21. These affidavit forms will be provided each student as a part of pre-registration information and material.

These two items are required before acceptance is granted.

ADMISSION OF VETERANS

Mesa College is open to any veteran who qualifies for college education and its Veteran Service program has been organized to give the most efficient assistance possible in planning his program of study.

The College is approved by the Veterans Administration for the education and training of veterans under Public Law 894 and others.

A veteran who does not meet the normal entrance requirements for admission, but who proves, through tests, that he is ready to do college work, will be admitted.

A veteran may take regular courses leading to an associate degree granted by Mesa College and preparing him for entrance to the higher division of four-year colleges and universities, or he may follow a terminal program designed to prepare for some specific occupation.

NOTE—Students who wish to qualify for Veterans Administration benefits should come prepared to finance their living expenses for a period of sixty days. This is the normal length of time required to set up a veteran's file in the regional office and for the issuance of monthly checks. All veterans must present a photostatic copy of their discharge in order to be excused from the Physical Education requirement.

ADMISSION OF SPECIAL STUDENTS

Mature individuals who lack some of the requirements for admission as regular students may be admitted as special students on a full or part-time basis. Special students may become regular students upon fulfilling the requirements for entrance. This may be done by passing the high school level tests in General Educational Development or, in some cases, by substituting certain college courses for high school units.

REGISTRATION AND COUNSELING TESTS

The college admission tests of the American College Testing (A.C.T.) Program are required of all new students prior to registration at Mesa College. It is recommended that prospective students take these tests during their senior year. Transfer students should contact the registrar sufficiently in advance of registration to make arrangements to take the tests, or to have an official report of the scores from a previous administration on file prior to registration. The tests are available at designated centers throughout the state and region on five different dates, in October, December, February, April, and August.

A $6.00 fee must be submitted with registration form to the A.C.T. Regional Office four weeks prior to the date on which the student elects to take the test. Detailed information regarding testing centers, dates, and registration supplies will be available through high school principals or from the Director of Admissions at Mesa College.

A residual testing program will be available in connection with Fall and Winter Registration for those students who do not take the tests during their senior year. These students will be required to take the tests during the Fall Registration Orientation program or, for the Winter Quarter, one day prior to registration in order that results will be available to students and their advisors during registration. A special testing fee will be collected from these students at the time they report for testing.

Students do not "pass" or "fail" these tests. The results are available to the student and his counselor and form an excellent basis for counseling and planning a course of study to meet the particular needs of students, and assist in sectioning and placement of students in class sections in keeping with their abilities and interests. Extra classroom instruction is provided during the first quarter for those whose test scores indicate weaknesses or deficiencies in certain areas such as English and mathematics.

College Board Scholastic Aptitude Test scores (S.A.T.), when received, are filed in the student's permanent record and personnel folder where they are available for counseling purposes if desired. However, these S.A.T. scores are not required by Mesa College and will not excuse the student from the A.C.T. program.

PROFICIENCY EXAMINATIONS

Proficiency examinations may be taken by regularly enrolled students to determine whether credit may be allowed for courses taken in an unapproved institution of higher learning; to determine amount of credit to be given for work done outside of class; and to provide a basis for exemptions from certain courses.

DIVISIONS AND DEPARTMENTS OF INSTRUCTION

Mesa College offers courses under the following divisions and departments: Agriculture, Art, Biological Science, Business, Chemistry, English, Foreign Language, General Education, Geology, Health, Home Economics, Humanities, Mathematics and Engineering, Music, Nursing, Physics, Physical Education, Psychology and Education, Social Science, Speech and Drama, Technical and Vocational, Trades and Industry, Continuing Education.

COURSES OF STUDY REQUIREMENTS

The course of study which an individual student pursues depends upon his present interests and his future plans. Freshman requirements for the principal courses offered at Mesa College are similar to those at senior colleges. Students who plan to continue college work after leaving Mesa College should decide upon the college to which they will transfer and plan their course here so that freshman and sophomore requirements of the college of their choice will have been met. **This is a student responsibility** although counselors will be glad to help.

REGISTRATION

In order to become a student of Mesa College, whether regular or special, an applicant must register on official forms provided by the college and at the appointed time. Credit will be given only for courses in which the student is registered.

N.C.D. COURSES

A student who desires to attend certain classes regularly, but does not wish to take the final examinations or receive grades or credit, should register No Credit Desired in these courses. Credit for such courses may not be established at a later date. A student may combine in his registration both credit and N.C.D. courses, but the total hours involved should not exceed a normal schedule.

Those whose major interest lies in the field of **Education, English, Foreign Language, History, Law, Music, Social Science,** or **Speech,** should register to meet the requirements of the Associate in Arts degree and, in addition, take the specific courses required in one of these fields, by the school to which they expect to transfer.

Those who are interested in **Agriculture, Dentistry, Engineering, Home Economics, Mathematics, Medicine, Pharmacy, Nursing** or related fields, should register in courses leading to the Associate in Science degree, and take the particular courses required by these departments in the universities and professional schools of their choice in the first two years.

CERTIFICATES, DIPLOMAS, DEGREES

Mesa College grants a certificate, diploma, or degree, according to the type of curriculum selected by the student and upon completion

of the specific requirements of each. These include completion certificates, a Mesa College diploma, and the degrees, Associate in Arts, Associate in Science, Associate in Commerce, and Associate in Applied Science.

A completion certificate may be awarded those who complete satisfactorily a terminal course of less than two years' duration.

No student will be awarded more than one degree.

GRADUATION (Minimum Requirements)

To graduate from Mesa College a student must:

1. Have been regularly enrolled at least three quarters, including the one next preceding the time of his graduation, and must have earned a minimum of 24 quarter hours at Mesa College.
2. Complete with an average of C (2.0 GPA) or better, 93 credit hours, including social science or literature, 9 hours; English 11 and 12, 6 hours, plus either English 13 or 3 hours of freshman literature; and physical education, 3 hours, to qualify for the MESA COLLEGE DIPLOMA.

   Additional requirements for an ASSOCIATE DEGREE include the specific course requirements listed on this page and on page 40 and, in the event that credit hours exceed 93, an overall average of C or better is required on all credit hours attempted.
3. File with the Director of Admissions and Records a petition for graduation within 3 weeks after registering for the last quarter. Penalty for late filing shall be $1.00.
4. Satisfy all general and specific requirements of Mesa College which pertain to him, including the fulfillment of all financial obligations.
5. Have removed from his record all marks of deficiency in those subjects for which he expects to receive credit toward graduation.
6. Be in attendance upon the Commencement exercises of his class unless a petition of absence, properly made by him to the committee on graduation, is approved by that committee.

DEGREES

The Associate in Arts and Associate in Science degrees are granted to students who qualify as regular students, meet the minimum requirements for graduation stated in the preceding paragraphs, and in addition complete the appropriate specific degree requirements as follows:*

* Specific requirements for the Associate in Commerce Degree may be found on page 40.

General Requirements for all DEGREES and the MESA COLLEGE DIPLOMA

All Mesa College graduates must complete with an average of C, or better, 93 hours, including:

Freshman English	9 hours
Social Science or Literature	9 hours
Physical Education (3 quarters of activity courses)	3 hours

Specific Requirements for the ASSOCIATE IN ARTS DEGREE

Physical Science	9 hours
History or other Social Science	9 hours
Literature	9 hours
Biology or Psychology	9 hours
Approved electives	45 hours

Specific Requirements for the ASSOCIATE IN SCIENCE DEGREE

Laboratory science and mathematics ..... 39 hours
Approved electives ..... 33 hours#

Specific Requirements for the ASSOCIATE IN APPLIED SCIENCE DEGREE

Students enrolled in one of the specially designed Vocational-Technical curricula may qualify for this degree upon completion of the general requirements listed above and the specific technical course requirements appropriate to the curriculum in question. The specific VT course requirements are listed in the Vocational-Technical section of this catalog. The general requirement of nine hours in Social Science or Literature is modified to include Psychology for this degree.

TEACHER PREPARATION

Mesa College recognizes the need for teachers, and encourages students of ability to prepare for teaching. A four-year program of training is needed for entry into the teaching profession, and students should plan their two years at Mesa in accordance with the requirements of the higher institution to which they expect to transfer. Since the first two years of teacher training is basically general education for improvement of background, students should follow the General Liberal Arts (transfer) program with suitable choice of electives. Mesa College has an active student education organization, M.E.S.A., which is affiliated with the Colorado Student Education Association. The Mesa College chapter is represented at most state education meetings and conventions.

TRANSFER OF CREDIT

Accreditation by the North Central Association of Colleges and Secondary Schools assures the acceptance of credits earned at Mesa College by other accredited colleges and universities throughout the United States. However, students are reminded that acceptance of transfer credit by any accredited college depends upon the individual student's previous grade average and a certification from the registrar of the former school that the student is in "good standing".

A student in good standing is entitled to a transcript of his record at any time. One transcript is furnished free of charge. A fee of $1.00 is charged for each additional transcript.

Credits transferred from an accredited junior college are accepted in senior colleges and universities up to a maximum prescribed by the particular institution for the first two years of a curriculum similar to the one from which the student transfers.

Junior colleges in Colorado are authorized by State law to provide only the first two years of college instruction. This is the equivalent of 90 academic hours, plus three hours of physical education, for most higher institutions.

Students who earn more than 90 academic hours may not receive credit for the excess hours on transfer to a four-year state college in Colorado that requires only 90 hours for Junior standing.

A student expecting to transfer to a senior college is advised to examine carefully the current catalog of the particular college he expects to enter and to follow as closely as possible its particular recommendations for programs of study.

Students majoring in professional nursing or other technical-terminal programs must complete courses of study as prescribed for the respective programs in addition to the above general graduation requirements.

GENERAL REGULATIONS

LATE REGISTRATION

Students registering late will be required to make up the work they have missed. Students are not permitted to enroll for a full-time class schedule after the first week of classes in any quarter. See page 26 for information on late registration fee.

ATTENDANCE

A student at Mesa College is expected to attend all sessions of each class in which he is enrolled. Failure to do so may result in a lowered grade or exclusion from class. At any time during a quarter, a student who fails to attend regularly may be dropped from college rolls.

All instructors are required to keep a record of all absences. Whenever the instructor thinks that absences are seriously affecting a particular student's work, it shall be his duty to report this fact to the office of the Dean of Students.

Absences will be excused when incurred by reason of a student's participation in required field trips, intercollegiate games and other trips arranged by the College only if previously approved by the Dean of Students. The coach or instructor or other official whose work requires absences from classes shall file in the Dean of Students' office a list of the names of the students involved at least 24 hours before the activity.

Absences due to serious illness or strictly unavoidable circumstances may be excused if the instructor in charge of the course is completely satisfied as to the cause. Being excused for an absence in no way relieves the student of the responsibility of completing all the work of the course to the satisfaction of the instructor in charge.

STUDENT LOAD AND LIMITATIONS

The normal student load is sixteen quarter hours (eighteen for engineering students) and the minimum load is twelve hours, except for a few special and part-time students. Eighteen hours is the maximum load until a student has shown his ability to take more, and then he may be permitted to carry more hours if his schedule is approved by the admissions committee.

COURSE CONTINUATION

Courses which continue for three quarters generally should be taken throughout the year by students planning to transfer credits to senior colleges or universities, and in the sequence indicated by the course numbers. Example: French 11, 12, 13, FWS (fall, winter, spring). To receive transfer credit for this course it is necessary to take all three quarters.

ACADEMIC STANDARDS

Standards of scholarship at Mesa College depend upon the objectives, nature and content of the courses. While individual progress is a basic consideration, and the development of each student in the light of his needs and aptitudes is the major concern of the College, it cannot be too strongly emphasized that if minimum standards are not maintained failure will result.

A student's achievement is considered satisfactory when he maintains a grade-point average of 2.0 (C) or higher.

ACADEMIC PROBATION AND SUSPENSION

Students who fail to make minimum acceptable grade-point averages for any given quarter will be placed on academic probation by the Admissions Committee for the succeeding quarter enrolled. Students failing to meet minimum prescribed academic standards for two consecutive quarters are subject to academic suspension for one or more terms. In cases of extremely low grades students may be suspended at the end of the first quarter of attendance. Students who are on academic probation are not eligible to hold office in student organizations, nor to represent the College in any regularly sponsored group or activity.

EVALUATION

The evaluation of student learning progress is considered to be a planned and continuous process and consists of a variety of activities including judgment, observation, testing, etc. Midterm and final examinations are a part of the evaluation process.

GRADE REPORTS

Individual reports are sent to parents, or by request, to individual students who have reached their majority at the end of each quarter. Special reports may be obtained upon application to the Records Office at any time. An official report is withheld, however, until all fees are paid.

SYSTEM OF GRADES

Grades in Mesa College are indicated as follows: A, for superior work; B, good; C, fair; D, minimum passing; F, not passing; Inc., incomplete; S, satisfactory; U, unsatisfactory; WP, withdrawn passing; WF, withdrawn failing; TF for unapproved withdrawal; and WN, withdrawn from non-credit course.

INCOMPLETES

A grade of "incomplete" may be reported only on account of illness at the time of a final examination, or when the student for reasons beyond his control has been unable to finish all the work of the course. This grade may be given only upon agreement between the instructor and the Records Office of the College. If arrangements for satisfactory completion of the course are not made before the end of the following quarter a grade of "F" will be assigned for the course.

WITHDRAWAL FROM COLLEGE

A student who desires to withdraw from the college should notify his faculty advisor and report to the Office of the Dean of Students, where the necessary withdrawal papers will be filled out and officially signed by the Dean of Students or one of the Associate Deans. The student will receive a grade of "WP" (Withdrawal Passing) for each course in which he is passing at the time of withdrawal, and a "WF" (Withdrawal Failing) for each course he is failing. Failure to record the withdrawal with the appropriate Dean within one week after withdrawal proceedings have been initiated will result in the assignment of a grade of "TF" (Technical Failure) in each course.

Official withdrawal from the College will not be granted during the last three weeks of a quarter, except in emergencies.

HONORABLE DISMISSAL

A statement of "honorable dismissal" will be given a student if at the time of withdrawal his status as to conduct, character and scholarship is such as to entitle him to continue in the College.

Academic Divisions and General Studies Programs

TYPE CURRICULUMS AND COURSE DESCRIPTIONS

The following pages provide suggested curriculums and descriptions of courses available in the various divisions and subject matter areas and departments to assist students in planning their courses. The curriculums include both general and special requirements for graduation with the appropriate degree or diploma as indicated. Faculty advisers will assist in selecting courses for other fields which may be desired by students and in accordance with requirements of specific institutions.

Arts and Science courses offered at Mesa College are grouped in thirty-seven departments or fields of study within nine major divisions. The descriptions which follow indicate the content of the course and list the prerequisites for those which are not beginning courses. Courses are numbered and given titles. For example, **History 52** is a course number and **United States History** is the corresponding course title.

Courses numbered from 1 through 9 are remedial in nature and not intended for transfer nor for Associate Degree requirements. Courses numbered from 10 to 50 are designed for freshmen and those numbered above 50, for sophomores. Numbers end in 1, 2, 3, according to the quarter in which they are regularly offered. Some courses, however, are offered two or three quarters during the year so that students may enter at the beginning of any quarter and be able to take a full schedule of work. FWS means fall, winter, spring.

Orientation

Each first-time student is required to participate in the Orientation program offered during Fall Quarter for transfer students and new freshmen. This program aids the student in his adjustment to college as it deals with planning a course of study, budget of time, study habits, extra-curricular activities, social and personal adjustment. Students meet in small groups with assigned faculty advisers. Assemblies covering many of the areas mentioned above will be conducted throughout the academic year.

Specific orientation or introduction courses are required of students majoring in such areas as Agriculture, Business, Engineering Forestry, and Home Economics.

Curriculums

Two types of general curriculums are suggested on the following page. For students who have definite majors in mind, additional suggested curriculums will be found at the beginning of the catalog sections devoted to the respective academic divisions. The curriculums found within the respective divisions represent sample or type curriculums to assist students in planning programs related to a certain subject-matter area and are not all-inclusive. There are sufficient course offerings throughout the various divisions to provide many other subject matter and vocational areas in which students may secure one or two years of lower-division course work at Mesa College. Following are some suggested subject-matter areas for which specific sample curriculums will not be found but which can be provided for by substituting appropriate courses available within the division in some of the existing suggested curriculums:

Dramatics, Economics, English, Government, History, Journalism, Laboratory Technician, Language, Literature, Mathematics, Medical Technician, Philosophy, Physics, Physical Therapy, Psychology, Sociology, Speech.

GENERAL CURRICULUMS

(Broad programs available to students who have not selected a definite major in one of the specific divisions.)

GENERAL EDUCATION

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Electives	5	Electives	5	Electives	5
Music 34	3	Psychology 22	3	Music 26	2
Psychology 21	3	Music 25	2	Psychology 23	3
Physical Education	1	Art 44	2	Speech 11	3
	14	Physical Education	1	Physical Education	1
			16		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
History	3	History	3	History	3
Science	5	Science	5	Psychology 33	3
Elective	5	Elective	5	Science	5
Literature	3	Literature	3	Elective	2
	16		16	Literature	3
					16

GENERAL LIBERAL ARTS (Transfer)

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Chemistry or Geol.	5	Chemistry or Geol.	5	Chemistry or Geol.	5
Mathematics 21 or 28	5	Mathematics 22 or 29	5	Mathematics 23 or 30	5
Physical Education	1	Elective	1	Elective	3
	17	Physical Education	1	Physical Education	1
			18		16

Note: A foreign language is advised if the student is planning on two years of a language in his course of study. First-year language may be substituted for mathematics or science by those students who prefer to complete two years of language at the junior college level.

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Literature	3	Literature	3	Literature	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Foreign Language	5	Foreign Language	5	Foreign Language	5
Soc. Science	3	Soc. Science	3	Soc. Science	3
Elective	3	Elective	3	Elective	2
	17		17		16

Division of Biological Sciences and Home Economics

The Division includes the course offerings in the areas of Agriculture, the Biological Sciences, and Home Economics.

The aims of this division are to provide for our students

1) The basic courses in a pre-professional curriculum.
2) Courses for non-science majors for general education.
3) Vocational training for those students who will terminate their education at the junior college level.

Instructional Staff: Mr. Rice, Chairman; Mr. Royal; Mrs. Leighton; Mrs. Ripley; Mrs. Sullivan; Mr. Yonker; Mrs. Young.

AGRICULTURE

AGRICULTURE SCIENCE*

Associate in Science

Those students entering into Agriculture Science should have a good mathematical and science background and have been an above average student in high school. The following freshman curriculum is recommended.

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biology 21	5	Biology 22	5	Biology 23	5
English 11	3	English 12	3	English 13	3
Chemistry 21 or 31	5	Chemistry 22 or 32	5	Chemistry 23 or 33	5
Mathematics 21	5	Mathematics 22	5	Mathematics 23	5
Agriculture 1	1	Physical Education	1	Physical Education	1
	19		19		19

APPLIED AGRICULTURE*

Associate in Science or Diploma

The following curriculum is suggested for those students not electing to major in Agriculture Science but who are interested in a course suitable for transfer and leading to a Bachelor of Science degree.

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Agriculture 11	5	Agriculture 42	5	Agriculture 23	5
Biology 21	5	Agriculture 62	3	Agriculture 33	5
English 11	3	English 12	3	English 13	3
Agriculture 1	1	Biology 22	5	Speech 11	3
Physical Education	1	Physical Education	1	Physical Education	1
	15		17		17

*Consult with counselor to plan a program that will best meet individual transfer needs for second-year curriculum. Suggested electives for the Agriculture Science major: American Government, World Civilizations, Speech, Literature, Economics. Suggested electives for the Applied Agriculture major: Agriculture 12, Agriculture 50, Mathematics 21, 22, 23; American Government, World Civilizations, Literature, Chemistry 21, 22, 25.

TERMINAL AGRICULTURE

Students who plan to terminate their formal education with study at Mesa College may follow a course of study of their own choosing. Such a course may lead to a Mesa College Diploma or Associate Degree. (See pages 24, 25.)

BIOLOGICAL SCIENCES

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Chem 31	5	Chem 32	5	Chem 33	5
Biol. 11 or 21	3-5	Biol. 12, 22, or 31	3-5	Biol. 13, 23, or 32	3-5
Mathematics 21	5	Mathematics 22	5	Mathematics 23	5
English 11	3	English 12	3	English 13	3
	16-18	Physical Education	1	Physical Education	1
			17-19		17-19

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Biol. 51	5	Biol. 52	3	Biol. 53	5
Elective		Elective		Elective	
or		or		or	
Chem. 31	5	Chem. 32	5	Chem. 33	5
Elective	2	Elective	5	Elective	2
Physical Education	1		16		15
	16				

PRE-FORESTRY

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biol. 21	5	Biol. 22	5	Biol. 23	5
Chem. 21	3	Chem. 22	5	Chem. 23	5
English 11	3	English 12	3	English 13	3
*Mathematics 21	5	Mathematics 22	5	Mathematics 27	5
Forestry 1	1		18		18
	19				

* Substitute approved elective if student can begin with Math 28.

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geol. 11	5	Biol. 31	5	Biol. 32	5
Econ. 51	3	Econ. 52	3	Agr. 56	5
Speech 11	3	Geol. 12	5	Physics 16	5
Humanities		Humanities		Physical Education	1
or		or			16
Social Science	3	Social Science	3		
Physical Education	1	Physical Education	1		
	15		17		

HOMEMAKING (Terminal)

Mesa College Diploma

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Home Economics 15	5	Home Economics 52	3	Home Economics 36	3
Home Economics 32	3	Home Economics 37	3	Physical Education	1
Intro. to H. Econ.	1	Art 21	2	Electives	5
Home Economics 11	2	Physical Education	1	Art 22	2
Physical Education	1	Electives	5	Home Economics 61	3
Home Economics 10	3		17		17
	18				

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Home Economics 41	3	Home Economics 53	2	Home Economics 35	2
Elective	3	Home Economics 42	3	Home Economics 53	3
Psychology 22	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Soc. Sci. or Lit.	3	Electives	6	Sociology 44	3
Physical Education	1	Speech 11	3	Electives	6
Home Economics 34	3		17		17
	16				

HOME ECONOMICS (Transfer)

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Home Economics 15	3	Home Economics 17	3	Home Economics 32	3
Chemistry 21	5	Art 21	2	Home Economics 36	3
Home Economics 1	1	Chemistry 22	5	Home Economics 33	2
Home Economics 16	3	Physical Education	1	Chemistry 23	5
Physical Education	1	Home Economics 11	2	Art 22	2
	16		16		18

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Home Economics 51	3	Home Economics 57	3	Home Economics 53	3
Psychology 21	3	Psychology 22	3	Biology 53	5
Biology 14	5	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Soc. Sci. or Lit.	3	Biology 15	4	Elective	3
Physical Education	1	Home Economics 12	3	Home Economics 61	3
Speech 21	3		16		17
	18				

Agriculture

Students enrolling for the study of agriculture at Mesa College should at the very outset decide whether they wish to take a course leading toward Agricultural Science, Applied Agriculture, or a terminal program.

1. AGRICULTURAL PROFESSION **F. 1 hour.**

Required of all freshmen who will major in agriculture. A survey of the various fields of study. Guidance in choosing major and minor fields of study. The opportunities as well as responsibilities associated with positions in agriculture when operating one's own business as well as when employed in one of the professions.

11. INTRODUCTORY ANIMAL SCIENCE **F. 3 hours.**

A study designed to furnish a general knowledge of the important principles of the livestock industry as it pertains to agriculture. Selections and evaluation of beef cattle, dairy cattle, sheep, and swine on a purebred and market basis are carried out. Emphasis is placed on types, breeds, markets, and market classification. Three lectures and two laboratory periods per week.

12. FARM POWER **FW. 3 hours.**

A theory and demonstration course on internal combustion engines, electrical systems, and power transfer. Special attention is given to proper operation, care, and adjustment of motors, engines, and transportation equipment of the farm. Two lecture periods and one two-hour laboratory per week.

14. LIVESTOCK JUDGING AND SELECTION **F. 2 hours.**

A study of animal form and its relation to the function of the individual. Emphasis is placed on the evaluation of live animals in

terms of their probable value for producing the product for which they are intended. Market and breeding classes of livestock will be judged. Prerequisite: Agriculture 11. Two laboratory periods per week.

23. CROP PRODUCTION **S. 6 hours.**

A study of the principles of field crop production with emphasis on cultural practices and botanical characteristics of crops grown in the inter-mountain region. Five hours lecture and one three-hour laboratory per week. Prerequisite: 5 hours of plant science or consent of instructor.

32. FEED AND FEEDING **W. 5 hours.**

Fundamentals of animal nutrition. Feeds and their uses. Calculation of rations to meet livestock requirements.

42. ECONOMIC ORGANIZATION OF AGRICULTURE **W. 5 hours.**

Agriculture's role in our changing economy; modern technology and its implications for farm and non-farm people; structure of agricultural industry and farm business; government and agriculture; analysis of the operating farm economy.

51. BASIC HORTICULTURE **F. 5 hours.**

Principles of horticulture science as applied to the propagation and culture of horticulture crops, language design, and improvement of plants. Prerequisite: 5 hours of plant science or consent of instructor.

52. FRUIT PRODUCTION **S. 5 hours.**

Principles and practices utilized in the production, harvesting and marketing of tree and small fruits. Site selection, harvesting methods, marketing procedures and the cultural practices of planting, pollination, pruning, thinning, soil management, fertilizing and irrigation. Prerequisite: 5 hours of plant science, Agriculture 51, or consent of instructor.

56. SOILS **S. 5 hours.**

A study of the formation, properties, and management of soils. Special attention is given to soil conditions that affect crop yields. Four hours lecture and three hours laboratory per week. Prerequisite: Chemistry 31 or Chemistry 21 for Agriculture students; waived for Forestry.

61. FORAGE CROPS **F. 4 hours.**

A study of the production and preservation as hay or silage of the principle forage crops and cultivated grasses. Special attention is given to the production and maintenance of farm pastures. Prerequisite: Agriculture 23. Class meets daily.

62. GENERAL DAIRY HUSBANDRY **W. 3 hours.**

A general course in dairying. History and present status of the dairy industry; starting dairy herds; breeds of dairy cattle; cow testing associations; club work; study of herd records; calf feeding; general principles of feeding, management and housing of dairy cattle. Prerequisite: Agriculture 11. Open to sophomore students. Two class periods and one laboratory period per week.

65. ENVIRONMENTAL INSECTS **S. 5 hours.**

An introductory course in the elementary anatomy and physiology of insects. A study of the life histories and habits of the more important insect pests and recommendations for their control. Four lectures and one laboratory period per week.

Biology

11, 12, 13. GENERAL BIOLOGY **FWS. 5 hours.**

A study of the fundamental biological principles involving both plant and animal life; survey of all of the phyla of the animal kingdom and the divisions of the plant kingdom; the place of man in the world of living things; and the relationships of man to other organisms. Students who elect this course may not receive full credit for general college botany or zoology. Two lectures, one laboratory each week.

14, 15. HUMAN ANATOMY AND PHYSIOLOGY F. 5 hrs., W. 4 hrs.

A study of the structure and function of the human body. The anatomy and physiology of the integument, skeletal, muscular, nervous, senses, circulatory, respiratory, excretory, digestive, endocrine, and reproductive systems are studied during the two quarters. Three lectures and two laboratories each week in the fall quarter, and three lectures and one laboratory per week in the winter quarter.

21, 22. GENERAL BOTANY **FW. 5 hours.**

The structure and functions of the higher plants, including a study of roots, stems, leaves, flowers, and seeds during fall quarter. Study of plant forms including a study of roots, stems, leaves, flowers, and seeds during fall quarter. Study of plant forms including the algae, fungi, mosses, ferns, gymnosperms, and angiosperms during the winter quarter. Three lectures and two laboratories per week.

23. PLANT TAXONOMY **S. 5 hours.**

This is a study of the classification and identification of the flowering plants. Emphasis is placed on plant family characteristics and the use of keys for identification. Four laboratories and one lecture each week with the use of mounted specimens and many field trips. Prerequisite: Biology 22 or consent of the instructor.

31, 32. GENERAL ZOOLOGY **WS. 5 hours.**

A detailed study of the fundamental principles of the science of animal biology, and a survey of all of the animal phyla with attention given to both structure and function. Three lectures and two laboratory periods each week. Full credit will not be given to those who have general-biology credit. A course for agriculture, pre-medical, veterinary, pre-dental, home economics, biology, and zoology majors.

41. ATTRIBUTES OF LIVING SYSTEMS **F. 4 hours.**

An introductory course in biology which emphasizes the levels of organization, stability and change in living systems. Three lectures and one laboratory per week.

42. PRINCIPLES OF ANIMAL BIOLOGY **W. 5 hours.**

A course designed to give the student broad morphological, physiological, and ecological features and the relationships of the principal phyla of animals. Prerequisite: Biology 41 or consent of instructor. Three lectures and two laboratories per week.

43. PRINCIPLES OF PLANT BIOLOGY **S. 5 hours.**

The student is exposed to the diversity of relationships of plants and their structure and functional characteristics. Prerequisite: Biology 41 or consent of instructor. Three lectures and two laboratories per week.

52. PRINCIPLES OF HEREDITY **W. 3 hours.**

Facts and principles of heredity as developed from the study of plants and animals. Human inheritance; genius, mental defects, individual differences, as well as the principles of heredity as applied to agriculture and livestock breeding. Open to all Sophomores.

53 GENERAL MICROBIOLOGY **S. 5 hours.**

An introductory course consisting of lectures and laboratory work in identification, cultivation, and isolation of molds, yeasts and bacteria. Emphasis upon non-pathogenic forms. Prerequisite: 9 hours of biological science.

61. POPULATION AND COMMUNITY BIOLOGY **F. 5 hours.**

Designed to provide an elementary understanding in heredity by utilizing the biology of populations of organisms, as shown by principles and essential facts of population genetics, energetics, dynamics distribution and sociology.

65. ENVIRONMENTAL INSECTS **S. 5 hours.**

An introductory course in the elementary anatomy and physiology of insects. A study of the life histories and habits of the more important insect pests and recommendations for their control. Four lectures and one laboratory period per week.

Forestry

1. FORESTRY OCCUPATIONS **F. 1 hour.**

An orientation program designed to acquaint the student with the varied forestry professions and job characteristics. Required of all pre-forestry students.

12. PRINCIPLES OF CONSERVATION **FW. 3 hours.**

A survey of natural resources including forests, range, minerals, water, and wildlife. National, state and local policies and programs for the use of such resources. This course is open to all students. Three lectures per week.

22. MAP DRAFTING AND READING **W. 3 hours.**

A one quarter course intended for students not taking a full year's program in drafting. Lettering and use of elementary drafting equipment. Maps, their construction and interpretation is included. The course meets for two hours lecture and two hours laboratory per week.

Home Economics

1. ORIENTATION (Introduction To Home Economics) **F. 1 hour.**

For Home Economics majors to explore opportunities in all fields of Home Economics. Some emphasis is placed on the use of time and study habits which will help the student to get the most from college.

10. BASIC CLOTHING CONSTRUCTION **FW. 3 hours.**

Basic clothing construction processes applied to the individual. Two hours lecture, four hours laboratory.

11. COSTUME SELECTION **FW. 2 hours.**

The relationship of the principles of design to the planning and selection of clothing. Two hours lecture.

12. NUTRITION **FW. 3 hours.**

The study of the functions of foods and its relation to health. Emphasis is placed on the application of nutrition knowledge to the selection of food.

15. TEXTILES **FS. 5 hours.**

Study of textile fabrics and fibers with emphasis on selection, care and wearing qualities of clothing. Three hours lecture, four hours laboratory.

17. INTERMEDIATE CLOTHING CONSTRUCTION **WS. 3 hours.**

Construction processes are studied and developed through the making of garments to meet individual needs.

32. HOME MANAGEMENT **FS. 3 hours.**

Study of family-living problems with emphasis on management of all resources. Three hours lecture.

33. HOUSE PLANNING **WS 2 hours.**

A combination lecture and laboratory course which involves the analyzing and evaluating of house plans as well as developing plans which the student can use.

34. INTRODUCTION TO CHILD CARE **FW. 3 hours.**

A lecture course pertaining to pre-natal growth; care of mother and baby; behavior patterns of the pre-school age child as shown in physical, emotional, and social growth.

36. HOME FURNISHING **FS. 3 hours.**

A study of the decoration and furnishing of a home. Artistic appreciation and buying techniques for household furnishings are emphasized. Three hours lecture.

38. CHILD DEVELOPMENT **WS. 3 hours.**

Essentials of child psychology. Study of the growth and development of young children, with emphasis on understanding and guidance. Motor skills, intelligence, emotional patterns and social behavior, examined and related to the child's place in our society.

41. 42. INTRODUCTION TO FOODS **FW. 3 hours.**

For those students who are not Home Economic majors. Emphasis placed on the principles of food preparation.

51. 52. FOOD SELECTION AND PREPARATION **FW. 3 hours.**

For Home Economic majors. Principles and techniques of preparing all classes of foods. College chemistry is prerequisite to this course.

53. PREPARATION AND SERVICE OF MEALS **S. 3 hours.**

Planning, preparing and serving family meals.

61. TAILORING **FS. 3 hours.**

Planning and construction of a tailored garment such as a suit or coat. Prerequisite: Home Economics 10 or 17 or consent of instructor.

Division of Business

The basic purpose of the Mesa College Business Division is to provide young men and women with the necessary specialized training for a future of self-reliance and economic opportunity. Terminal programs in business education and skills are offered to those who desire to prepare for clerical positions with business concerns, educational institutions, and governmental agencies. They provide the necessary preparation for beginning bookkeepers, assistant accountants, stenographers, typists, filing clerks, business machine operators, and other types of business and office workers. A student is permitted to select, from a variety of courses, those which meet his own individual needs. Students may enroll for one or two years, depending on the amount of preparation needed or desired.

Instructional Staff: Mr. Goffredi, Chairman; Mr. Carstens; Mr. Dickson; Miss Capps; Mr. Cassidy; Mr. Graves; Mrs. Hansen; Mrs. Harper; Miss Root; Mr. Squirrell; Mr. Tipping; Mrs. Uhrlaub; Mr. Youngquist.

PROGRAMS

Two types of terminal programs are planned, one for the student who has not had previous training in business, and one for the student who has completed part of his business training in high school or elsewhere.

The Division of Business enjoys a fine reputation among the colleges and universities of the area for its high level transfer programs in Business Administration, Accounting, and Secretarial Science.

New programs in technical education have been added to the business curriculum to meet the need for better trained manpower. See page 108.

ASSOCIATE IN COMMERCE DEGREE

The Associate in Commerce is granted to two groups of graduates: (1) those who follow the accounting option and (2) those whose interests are in the secretarial field.

Each group must meet the general requirements for graduation as stated on page 25 and in addition complete the following special course requirements.

Social Science or Literature	18 hours
Business Mathematics	4 hours
Introduction to Business	3 hours
Accounting	3 hours
Business Data Processing	3 hours
Business Electives	30 hours
Other Electives	20 hours

PROFESSIONAL PROGRAMS

ACCOUNTING

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Business 32	3	Accounting 33	3
English 11	3	Accounting 32	3	English 13	3
Business 41	4	English 12	3	Math or Science	3-5
Math or Science	3-5	Math or Science	3-5	Business 11	3
Elective	2	Bus. 12 (Intro. to Bus.)	3	Business 60	3
	15-17		15-17		15-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Economics 51	3	Economics 52	3	Economics 53	3
Business 51	3	Business 52	3	Speech 11	3
Literature*	3	Literature*	3	Literature*	3
Psychology	3	Psychology	3	Psychology	3
Acctg. 62	3	Acctg. 63	3	Acctg. 64	3
Physical Education	1	Physical Education	1	Physical Education	1
	16		16		16

SUGGESTED ELECTIVES: Insurance, Personal Finance and Money Management, General Sociology, Salesmanship, History, Business 53.

*Literature 61, 62, 63 is recommended for students planning to transfer to the University of Denver.

BUSINESS ADMINISTRATION

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Mathematics 21	5	Mathematics 22	5	Mathematics 23	5
Chem. or Geol.	5	Chem. or Geol.	5	Chem. or Geol.	5
Physical Education	1	Elective	3	Speech 11	3
Bus. 12 (Intro. to Bus.)	3	Physical Education	1	Physical Education	1
	17		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Accounting 32	3	Accounting 33	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Literature	3	Literature	3	Literature	3
Economics 51	3	Economics 52	3	Economics 53	3
Business 11	3	Elective	4	Business 60	3
	15		16		15

SECRETARIAL

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Sec. Science 21	4	Sec. Science 22	4	Sec. Sci. 14	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Sec. Sci. 23	4
Business 41	4	Physical Education	1	Soc. Sci. or Lit.	3
Physical Education	1	Elective	2	Business 11	3
	15	Bus. 12 (Intro. to Bus.)	3		15
			16		

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Science or Math	3-5	Science or Math	3-5	Science or Math	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Physical Education	1	Sec. Science 15	3	Accounting 13	3
Business 51	3	Sec. Science 31	4	Sec. Science 33	3
Speech 11	3	Physical Education	1	Business 60	3
	13-15		14-16		15

SUGGESTED ELECTIVES: Accounting, Agriculture, Art, Home Economics, Income Tax, Insurance, Language, Music, Personal Finance, Psychology, and Salesmanship.

Accounting

13. SECRETARIAL ACCOUNTING **S. 3 hours.**

For those who plan to go into secretarial office work and may be required to keep the accounts of a dentist, lawyer, or other professional individual, or for those who will need to keep financial records for themselves. It is a terminal course and is not required for those who plan to take Principles of Accounting. No credit allowed if credit already established in Accounting 32. Class meets daily.

31, 32, 33. PRINCIPLES OF ACCOUNTING **FWS. 3 hours.**

Intended for those students who plan to major in business administration or elect the two-year accounting option. The course includes the development of the fundamental principles of double-entry bookkeeping, the balance sheet, profit and loss statements, controlling accounts, partnership accounting, opening corporation books, bonds, bond sinking funds, and introduction to job order and process accounting. The final quarter is devoted largely to corporate accounting and the completion of a practice set. Class meets daily.

62, 63. INTERMEDIATE ACCOUNTING **WS. 3 hours.**

A two quarter course developed to fit the needs of two groups of students: the terminal student who wishes to have a better understanding of accounting theory; and, the accounting and business administration majors for whom the intermediate study is the foundation for specialized courses. The course presents a continuation of corporate accounting with emphasis on financial statements and current items. Final quarter is devoted to a further study emphasizing noncurrent items and corporate capital. Prerequisite: Accounting 33.

84. COST ACCOUNTING **F. 5 hours.**

An introduction to the determination of the cost of manufacturing. Emphasis will involve the three elements of cost—material, labor and overhead. The job cost system, process cost system and standard cost system will be the major topics. Miscellaneous cost factors will be introduced at appropriate times.

General Business

10. WORD STUDY (Business) **F. 2 hours.**

A study of words: their spelling, meaning, derivation, and pronunciation with emphasis on spelling. Emphasis will be placed on business terms. Open to all students.

11. BUSINESS COMMUNICATION **FWS. 3 hours.**

A study of the essentials of English in business communication. Creative, logical, and critical thinking are applied to the criticism, preparation, and planning of business letters and written and oral reports. Attention is given to application letters and the employment interview. Prerequisites: English 11 and a knowledge of typing.

12. INTRODUCTION TO BUSINESS **FWS. 3 hours.**

A general course designed to provide an understanding of how the American business system operates and its place and role in the economy. Surveys the American business system with emphasis on business functions and the interrelations between the businessman and his environment. Required of freshman business and accounting students.

21, 22, 23. BUSINESS MACHINES **FWS. 2 hours.**

Fundamental skills are developed on the ten-key adding machine, rotary calculator, and printing calculator. A student earns two hours of credit for each quarter of machines, with a maximum of four hours, provided he does not repeat the machine taken in a prior quarter. Business 21, 22, 23 indicates Fall, Winter, and Spring quarters rather than a sequence course. Usually offered through Continuing Education division.

26. SALESMANSHIP **FW. 3 hours.**

Selling techniques developed. Psychological factors, initiative, and personality involved in influencing others in business transactions are studied.

27. ADVERTISING **W. 3 hours.**

A study involving the student in the dynamics of modern advertising, its practices, principles, media, and methods. It emphasizes the role and responsibilities of advertising in a changing business world.

32. INCOME TAX **WS. 3 hours.**

The tax law applied to individuals and small businesses.

36. PERSONAL FINANCE AND MONEY MANAGEMENT **S. 3 hours.**

A course designed to help those who want to do a better job of managing personal finances. The course will deal with the everyday financial problems that beset every man and woman, young or old. Financial problems of consumers will be studied.

39. INSURANCE **S. 3 hours.**

A basic study of the common types of protection afforded by insurance including fire, life, automobile, accident, and health.

42. FILING **F. 2 hours.**

Alphabetic, numeric, geographic, subject, and soundex systems of filing are studied. Practice is given in the filing of material and the locating of filed correspondence.

43. BUSINESS MATHEMATICS I **FWS. 4 hours.**

Review of the fundamental skills of whole numbers, decimals, fractions, interest, and percentages as they apply to business and consumer problems. The student will use office machines as well as pencil and paper in solving the problems required in this course. This course is required of those majoring in business. Class meets daily.

44. BUSINESS MATHEMATICS II **FWS. 4 hours.**

A continuation of Business 43. Will pursue further studies in interest, compound interest, mortgage interest, mill levies, depreciation and annuities.

45. BUSINESS DATA PROCESSING **FWS. 3 hours.**

An introduction to the fundamentals of business data processing systems. This course is designed to introduce the student to automated data processing systems including unit record and computer equipment, their use and potential as viewed from the employee and management level.

51. BUSINESS LAW I **F. 3 hours.**

A study of: Contracts in general; Relation of Principle and Agent; Employer and Employee; Negotiable Instruments; Principal and Surety; Insuror and Insured; Bailor and Bailee.

52. BUSINESS LAW II **W. 3 hours.**

Contracts continued; Carriers and Shippers; Vendor and Vendee; Landlord and Tenant; Partnerships; Corporations. Prerequisites: Business Law I. Required for A.C. degree, Accounting option.

53. BUSINESS LAW III **S. 3 hours.**

A continuation of Business 52: Torts; Business Crimes; Bankruptcy; Property; Deeds of Conveyance; Mortgages. Prerequisite: Business Law II.

Secretarial Science

10. BEGINNING TYPEWRITING **FW. 2 hours.**

A course for those students with no previous training. No credit will be given if student has high school credit. Class meets daily. Available in night school only.

11. BEGINNING TYPEWRITING (continuation of SS 10) WS. 2 hours.

No credit will be given if student has high school credit. Class meets daily. Available in night school only.

14. INTERMEDIATE TYPEWRITING **FW. 3 hours.**

Review of letter styles, forms of punctuation and other fundamentals. Direct dictation at typewriter. Intensive drill on letter placement with mailable copy. Development of speed required in the average office. Prerequisite: One year high school typing or equivalent. Class meets daily.

15. ADVANCED TYPEWRITING **WS. 3 hours.**

Study of tabulations, telegrams, memos, business letters and legal forms. Fundamental skills are developed on duplicating machines. Prerequisite: Secretarial Science 14. Class meets daily.

17. DICTATION AND TRANSCRIPTION MACHINES **S. 3 hours.**

A course to develop fundamental skills on various types of dictation and transcription machines. Emphasis is placed on machine operation, and speed and accuracy of transcription on the typewriter. Prerequisite: One year of high school typing, Secretarial Science 14, or enrollment in Secretarial Science 14.

21. SHORTHAND THEORY **F. 4 hours.**

A course for those students with no previous knowledge of shorthand. A limited amount of dictation is given. No credit will be given if student has high school credit. Class meets daily.

22. SHORTHAND THEORY **W. 4 hours.**

Continuation of Secretarial Science 21. No credit will be given if student has high school credit. Class meets daily. Prerequisite: Secretarial Science 21.

23. BEGINNING DICTATION **FS. 4 hours.**

Review of the principles of shorthand. Dictation is given at the rate of 80 to 100 words a minute. Machine transcription, with special attention to letter arrangement. Prerequisite: Secretarial Science 22 or equivalent, Secretarial Science 14 or enrollment in Secretarial Science 14. Class meets daily.

31. INTERMEDIATE DICTATION AND TRANSCRIPTION W. 4 hours.

A dictation speed of 90 to 110 words a minute is attained with a mailable transcript. Prerequisite: Secretarial Science 23. Class meets daily.

33. SECRETARIAL PRACTICE **W. 3 hours.**

Skill is developed in the application of typing and shorthand to office situations and on transcribing machines. Business dress, business ethics, and personality development is discussed. Prerequisite: Credit or enrollment in Secretarial Science 23 and Secretarial Science 14.

ONE- AND TWO-YEAR PROGRAMS

Accounting and Secretarial

The Division of Business offers one- and two-year programs in both accounting and secretarial science. The basic purpose of these programs is to afford students an opportunity to receive training which will in a relatively short time fit them for employment.

In the two-year accounting program general education is incorporated with two years of accounting and related subjects. The one-year curriculum offers only one year of accounting and related subjects.

The two-year secretarial program incorporates general education with the skills of shorthand, typing, and secretarial practice.

The one-year clerical and stenographic courses concentrate on the rapid development of skills to enable the student to seek employment in the shortest possible time.

Both the two-year accounting and two-year secretarial programs lead to the Associate of Commerce degree or the Mesa College Diploma.

ACCOUNTING (18 Months)

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Business 32	3	Sec. Science 14	3
English 11	3	Accounting 32	3	Accounting 33	3
Business 41	4	English 12	3	English 13	3
Math or Science	3-5	Math or Science	3-5	Math or Science	3-5
Business 12	3	Elective	3	Business 11	3
	16-18		15-17		15-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Economics 51	3	Economics 52	3	Economics 53	3
Business 51	3	Business 52	3	Speech 11	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Psychology	3	Psychology	3	Psychology	3
Acctg. 62	3	Acctg. 63	3	Acctg. 64	3
Physical Education	1	Physical Education	1	Physical Education	1
	16		16		16

SUGGESTED ELECTIVES: Insurance, Personal Finance and Money Management, General Sociology, Salesmanship, History, Business Law (Bus. 53).

ACCOUNTING (9 Months)*

Certificate

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Accounting 32	3	Accounting 33	3
Business 12	3	English 12	3	English 13	3
English 11	3	Elective	3	Sec. Sci. 14	3
Business 41	4	Speech 11	3	Business 11	3
Business 10	2	Business 32	3	Elective	3
	15		15		15

* Course descriptions are given in General Business and other sections of this catalog.

SECRETARIAL COURSE (18 Months)*

Associate In Commerce

FIRST YEAR

Fall Quarter	Hours
English 11	3
Sec. Sci. 21	4
Soc. Sci. or Lit.	3
Business 12	3
Business 41	4
	17

Winter Quarter	Hours
English 12	3
Sec. Science 22	4
Soc. Science or Lit.	3
Physical Education	1
Speech 11	3
Elective	2
	16

Spring Quarter	Hours
English 13	3
Sec. Science 14	3
Sec. Science 23	4
Soc. Sci. or Lit.	3
Physical Education	1
Business 11	3
	17

SECOND YEAR

Fall Quarter	Hours
Science or Math	3-5
Soc. Sci. or Lit.	3
Physical Education	1
Business 51	3
Business 21	2
Elective	2-4
	16

Winter Quarter	Hours
Science or Math	3-5
Soc. Sci. or Lit.	3
Sec. Science 15	3
Sec. Science 31	4
Sec. Science 33	3
	16-18

Spring Quarter	Hours
Science or Math	3-5
Soc. Sci. or Lit.	3
Accounting 13	3
Electives	6
	15-17

SUGGESTED ELECTIVES: Accounting, Agriculture, Art, Economics, Home Economics, Income Tax, Insurance, Language, Music, Personal Finance, Psychology, and Salesmanship.

STENOGRAPHIC-CLERICAL COURSE (9 Months)*

Certificate

Fall Quarter	Hours
Bus. 12 (Intro. to Bus.)	3
English 11	3
Sec. Sci. 14	3
Soc. Science 23	4
Business 10	2
Business 42	2
	17

Winter Quarter	Hours
Speech 11	3
English 12	3
Business 22	2
Sec. Science 15	3
Sec. Science 31	4
	15

Spring Quarter	Hours
Accounting 13	3
English 13	3
Business 23	2
Sec. Science 32	4
Business 11	3
	15

* Course descriptions are given under General Business, Secretarial Science, and other sections of this catalog.

Job-Entry Occupations in Business

See Pages 97, 118 for Curriculum

This vocational program is designed to help students acquire skills for entry into a number of occupations in business. It also is intended to offer students with limited academic backgrounds an opportunity to gain additional skills before attempting a college-level program. For a description of the Job-Entry curriculum, see the Vocational-Technical section of this catalog.

Division of Fine Arts

The Division of Fine Arts is composed of the departments of Music, Drama, and Art. These areas of study endeavor to provide courses and instruction primarily for the continued cultural development of students by bringing them in contact with the cultures of the past and present. Such studies invariably define the influence of the arts to intellectual and moral development that contribute to a fuller and nobler life for the individual and for society.

Instructional Staff: Mr. Redden, Chairman; Mr. Blackburn, Head, Department of Music; Mr. Birkedahl; Mr. Carmichael; Mr. Hunt; Mr. Mayers; Mr. Robinson, Head, Department of Speech and Drama; Mr. Sanders; Mr. Schneider.

ART

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Art 14	3	Art 15	3	Art 16	3
Art 41	3	Art 42	3	Art 43	3
Art 11	2	Art 12	2	Art 13	2
Physical Education	1	Physical Education	1	Physical Education	1
		Elective	2	Elective	2
	15		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Lit. or Soc. Sci.	3	Lit. or Soc. Sci.	3	Lit. or Soc. Sci.	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Sophomore Art Classes	6	Sophomore Art Classes	6	Sophomore Art Classes	6
Phys. Science 11	3	Phys. Science 12	3	Phys. Science 13	3
	15		15		15

MUSIC

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Music 14	3	Music 15	3	Music 16	3
Music 17	1	Music 18	1	Music 19	1
Applied Music	2	Applied Music	2	Applied Music	2
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Music 21	1	Music 22	1	Music 23	1
Music 24	2	Music 25	2	Music 26	2
Ensemble	1	Ensemble	1	Ensemble	1
Physical Education	1	Physical Education	1	Physical Education	1
	17		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Psychology 21	3	Psychology 22	3	Psychology 23	3
Music 51	3	Music 52	3	Music 53	3
Applied Music	3	Applied Music	3	Applied Music	3
Science 11	3	Science 12	3	Science 13	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci or Lit.	3
Ensemble	1	Ensemble	1	Ensemble	1
Conducting	1	Conducting	1	Conducting	1
	17		17		17

Art

The Department of Art functions to enable the student to gain an understanding and appreciation of art principles in graphic and plastic art forms through numerous experiences gained in the basic courses offered. Development of creative ability is stressed in the use of various media and techniques. The art department also serves to promote artistic and cultural growth in the community by participating in art activities and by sponsoring frequent exhibits of student work and traveling exhibits in the college art gallery.

The Art Collection. The art department reserves the right to retain two examples of work from each student to add to its collection.

11, 12, 13. FREEHAND DRAWING **FWS. 2 hours.**

A basic course emphasizing art principles in outdoor sketching, drawing of still-life groups, and work from casts. Individuality is encouraged and interpretations expressed in various media, such as pencil, charcoal, pen and ink, colored chalks, lithograph and conte crayons. Part of the laboratory work is done outdoors where the student is trained to see, comprehend, and express graphically studies in compositional arrangements. Analytical observations are made from contemporary materials and reproductions. Four laboratory hours per week.

14. INTRODUCTION TO ART **FS. 3 hours.**

A basic art lecture course for beginning art majors who have limited high school background in art; also open to other students who wish to study art appreciation and do some studio work. Experienced art students may challenge this course by submitting an acceptable portfolio of previous work and passing a test of art terminology.

15. DESIGN IN COLOR **W. 2 hours.**

Various approaches to two-dimensional form are studied with emphasis on color theory and practice.

16. THREE-DIMENSIONAL FORM **S. 2 hours.**

Work is with three-dimensional design in a variety of media. A course leading to work in sculpture, media and processes, and ceramics.

21, 22. ART IN THE HOME **WS. 3 hours.**

A course designed especially for majors in Home Economics with stress placed on design and color problems in the home and everyday living.

31, 32. LETTERING AND LAYOUT **FW. 2 hours.**

Skills in freehand and build-up letters are emphasized; also, the use of lettering in conjunction with concepts in advertising and total design. Word construction and layout designs are stressed on advertising materials. This course is recommended for business students, students in the Travel and Recreation Management Program, and for others wishing to acquire skills in lettering and layout.

41, 42, 43. HISTORY OF ART **FWS. 3 hours.**

A survey of art of all ages reflecting the various cultures of mankind from the prehistoric to the present.

51. WATERCOLOR PAINTING **F. 2 hours.**

Emphasis will be placed upon the study of form and composition as the student learns to apply various methods of watercolor rendering. Prerequisite: Art. 13.

53. FIGURE DRAWING **W. 3 hours.**

A sophomore-level course open to art majors and non-art majors who meet the prerequisites. Two hours of lecture-discussion (human anatomy, proportions, critiques, etc.) and four hours of studio work each week. Prerequisites: Art 11, 12, 13.

55, 56, 57. SCULPTURE **FWS. 3 hours.**

Studio work in carving, modeling or assemblage processes is done each quarter. Basic sculpture materials including plaster, clay, wood and metal are used. Some study of the work of contemporary sculptors is done. Prerequisite: Art 16. Intended for Art Majors.

61, 62, 63. ART PROCESSES AND MEDIA **FWS. 3 hours.**

Two-and-three dimensional problems, abstract and concrete, involving application to various craft materials. Six laboratory hours per week. Prerequisites: Art 15 and 16.

65, 66, 67. CERAMICS **FWS. 2 hours.**

A studio course in ceramic materials and processes, including hand-building, potter's wheel, glazing and firing. Equal emphasis is given to work in studio production of pottery and laboratory problems in clay bodies, glazes and decoration techniques. During the third quarter the student may emphasize either pottery or ceramic sculpture in his studio work; the laboratory work is in glaze formulation. Prerequisite: Art 16 for art majors. Other students may take the course with permission of the instructor.

71, 72, 73. PAINTING AND COMPOSITION **FWS. 3 hours.**

Composition is stressed in creative problems; understanding of light and dark massing gained through preparatory designs for paintings. Oil and synthetic materials are studied and paintings executed in full color. Six laboratory hours per week. Prerequisites: Art 11, 12, 13 and Art 15.

81, 82, 83. PRINTMAKING **FWS. 3 hours.**

Introduction to the techniques and processes of various printmaking media, including intaglio, planographic, and relief. Etchings, engraving, aquatint, dry point, collography, woodcut, linocut, serigraphy and stone lithography are the printing techniques available. The history of printmaking is also emphasized. Prerequisites: Art 11 and 12.

Drama

12. CREATIVE PLAY ACTIVITIES—DRAMA **S. 3 hours.**

This course is designed for those students who will be working with preschoolers, kindergarten and elementary students. Through the creative process students will develop plays from stories, books, historical events, etc. Also, there will be a section on puppetry.

17, 18, 19. PLAY PRODUCTION **FWS. 1 hour.**

This is a practical course of stagecraft concerned with the production of plays presented at the college. The students work in the areas of scenery, construction, painting, lighting, make-up, properties. Hours are arranged for laboratory assignment plus one hour a week in class assignment.

31, 32, 33. HISTORY OF THEATRE **FWS. 2 hours.**

A course exploring the historical aspects of the theatre as an institution and showing its relationships to the other arts and to the social environment.

34, 35, 36. DEVELOPMENT OF THE CINEMA **FWS. 2 hours.**

Through the medium of classic films, this course explores the techniques and history of the moving-picture industry. The first quarter is devoted to the American film, the second quarter to the foreign film, and the third quarter to the documentary and the art film.

41. THEATRE PRACTICE: INTRODUCTION **F. 2 hours**

42. THEATRE PRACTICE: COSTUME AND MAKE-UP **W. 2 hours**

43. THEATRE PRACTICE: ACTING AND DIRECTING **S. 2 hours**

This course introduces and acquaints the student with the theatre and the presentation of plays. The first quarter places an emphasis on types of plays, drama and the audience and what to look for in viewing a play. The second quarter places an emphasis on costuming and make-up. The third quarter is an introduction to the directing of plays, acting and stage techniques.

44. THEATRE PRACTICE: SCENE CONSTRUCTION **F. 2 hours**

45. THEATRE PRACTICE: LIGHTING AND SOUND **W. 2 hours**

46. THEATRE PRACTICE: SCENE DESIGN **S. 2 hours**

A three-quarter sequence course designed to meet the basic stagecraft requirements of many four year institutions. The first quarter is concerned with the construction, handling and painting of scenery; the second quarter is an introduction to stage lighting; the third quarter is an introduction to scene design and the importance to the finished production.

51, 52. BEGINNING ACTING **WS. 2 hours.**

This course is designed to introduce the student to the principles and techniques of acting through pantomime, improvisation, and performance of solo, duo, and group scenes. It will be offered on demand (minimum of ten students). Prerequisites: Drama 41, 42, 43 or permission of the instructor.

55, 56, 57. INDEPENDENT STUDY IN PROBLEMS IN THEATRE **FWS. 1-3 hours.**

Independent work which may include a study of plays and papers; direction of a play (one-act or three-act); designing and erecting of scenery and/or costumes for a production; a theatre tour followed by discussion and papers on plays attended.

61, 62, 63. PLAY PRODUCTION **FWS. 1 hour.**

A continuation of Drama 17, 18, 19. Provides opportunity for a student to receive credit in Play Production during sophomore year.

Music

THEORY, HISTORY, AND EDUCATION

10. MUSIC FUNDAMENTALS **WS. 2 hours.**

A study of the basic music tools. No background in music is required. This course will include the essentials of music needed for teachers in grade-school classrooms. The course is recommended for those who do not desire the concentration of the regular Music Theory course, but who wish to obtain a knowledge of musical tools. It is also recommended as a preparation for music theory. Material to be covered will include the study of familiar songs from a melodic and harmonic viewpoint, scales, keys, notation, music reading and harmony.

11, 12, 13. MUSIC APPRECIATION **FWS. 2 hours.**

A study of famous composers and compositions. Encourages an interest in concert music. Course designed for non-music majors, students who are not musicians but wish to increase their knowledge of music. All types of music from early masters to contemporary jazz are considered.

14, 15, 16. ELEMENTARY THEORY **FWS. 3 hours.**

This course is designed to give the student a thorough ground work in the elements of music. A detailed study is made of keys, scales, modes, intervals, triads, seventh chords, etc. The techniques and rules of simple, four-part harmony are studied and practiced and keyboard techniques for the above are developed. Knowledge of piano essential; or piano studied concurrently with Music Theory.

17, 18, 19. SIGHT SINGING AND EAR TRAINING **FWS. 1 hour.**

Sight singing is developed by practice in vocal recognition of tonal and rhythm patterns and by singing graded musical exercises. Ear training is developed by means of rhythmic, melodic, and harmonic dictation exercises. The course should be taken in conjunction with Elementary Theory since materials in both courses are correlated.

21, 22, 23. STRING CLASS **FWS. 1 hour**

This course provides classroom instruction to beginners in bowed strings, including violin, viola, cello, bass.

24, 25, 26. HISTORY OF MUSIC **FWS. 2 hours.**

This course makes an in-depth survey of musical development of Ancient, Medieval Renaissance, Baroque, Classical, Romantic and Modern music. Lectures and readings are illustrated with recordings, films and guest performances. The course work is geared to the music major and minor; however, any student with sufficient background may take the course.

27, 28, 29. PIANO CLASS **FWS. 1 hour.**

This course provides classroom instruction to beginners in piano.

31, 32, 33. WOODWIND CLASS **FWS. 1 hour.**

This course provides classroom instruction to beginners in woodwinds. Particular emphasis is given to obtaining proficiency in clarinet. Winter quarter deals mainly with flute and sax and spring quarter deals with oboe and bassoon. Woodwind class should be considered a full-year course.

41, 42, 43. BRASS CLASS **FWS. 1 hour.**

This course provides classroom instruction to beginners in brass instruments.

51, 52, 53. ADVANCED THEORY **FWS. 3 hours.**

Only those who have mastered the material of Elementary Theory should register for this course. Topics studied include altered chords, modulations, non-harmonic tones, elementary counterpoint, and musical forms. Four-part harmony from melody and figured bass is stressed. Original composition is practiced and encouraged. Drill in sight-singing, and melodic and harmonic dictation is continued from the first year program.

67, 68, 69. CONDUCTING **FWS. 1 hour.**

An introductory study of conducting: Choir (Fall Quarter), Band (Winter Quarter), Orchestra (Spring Quarter).

APPLIED MUSIC—ENSEMBLE

Besides regularly scheduled class meetings, members of ensembles are required to attend special rehearsals and to take part in programs. All applied music courses are open to both freshmen and sophomores.

10, 20, 30. JAZZ ENSEMBLE **FWS. 1 hour.**

By audition only. Preference is given to participating members of marching band in the fall and wind ensemble in winter and spring quarters. The initial stages of the band's development includes studying and playing dance band repertoire, practical performance and jazz improvisation. The group performs several concerts on campus each year, plays area dances and makes a concert tour in the spring.

31. MARCHING BAND F. 1 hour.

Open to all students regardless of major. The marching band performs at all home games and marches in several local parades. A limited number of scholarships are available by audition with the director. The band may accompany the football team out of town when need and finances permit. Marching band credit may be substituted for one hour of Physical Education requirement. Rehearses at 1 p.m. daily during marching season.

32, 33. SYMPHONIC WIND ENSEMBLE WS. 1 hour.

Open to all students, regardless of major, who demonstrate sufficient ability to study, rehearse, and present advanced forms of wind ensemble literature. The group presents a formal concert each quarter and presents concerts in local high schools. Occasionally guest conductors and nationally known soloists perform with the group.

37, 38, 39. INSTRUMENTAL ENSEMBLE FWS. ½ hour.

Groups are organized based upon the talents and interests of the students. These groups may consist of various combinations of woodwind, string, brass, and percussion instruments.

40. PEP BAND W. 1 hour.

Membership is open to any student based upon ability and instrumentation. The group performs at all home basketball games. Repertoire includes pop, jazz and rock tunes. Rehearses two hours per week during basketball season. The group may accompany the basketball team out of town when need and finances permit.

41, 42, 43. SYMPHONY ORCHESTRA FWS. 1 hour.

The Mesa College Civic Symphony Orchestra draws its personnel from the professional, amateur, and student musicians of Grand Junction and other Western Slope communities. At least three concerts are presented during the school year. Nationally known musicians appear with the orchestra as guest soloists. Admission by special permission of the director.

44, 45, 46. VOCAL ENSEMBLE FWS. ½ hour.

Vocal ensembles include men's and women's trios, quartets, double quartets, etc. Groups organized are based upon the talents and interests of the students.

47, 48, 49. COLLEGE CHOIR FWS. 1 hour.

Open to all men and women who wish to sing the best in all styles of choir literature. This group performs several concerts and membership is necessary to be eligible for the Modern Choir.

51, 52, 53. PIANO ACCOMPANYING FWS. ½ hour.

A course designed for giving piano majors actual experience in supervised accompanying.

57, 58, 59. COMMUNITY CHOIR FW. 1 hour.

Open to college faculty, students and community members, and performs with the community orchestra. Outstanding opportunity to sing the world's greatest music.

71, 72, 73. MODERN CHOIR **FWS. 1 hour.**

A selected group of singers who must also be members of the college choir. This "contact troupe" sings Broadway show tunes, jazz, and popular music, and entertains both on campus and at community functions. Auditions are held for membership in this group.

APPLIED MUSIC—INDIVIDUAL LESSONS

Individual music lessons are given in piano, voice, and most of the orchestral and band instruments. The fee, determined by the Music Department, is $35.00 per quarter which entitles the student to one lesson a week per quarter. All applied music fees are to be paid at the time of registration.

The number of hours credit in applied music is to be determined for each student by the music staff. Those who register for one lesson per week may receive one or two hours credit. Music majors may register for four hours credit by special permission only.

Music majors and students performing in a major musical group (such as orchestra, band, and choir) are eligible for scholarship consideration to assist them in meeting the costs of applied lesson fees. Inquiries are to be directed to the Music Department.

11, 12, 13. VOICE **FWS. 1, 2, 4 hours.**

14, 15, 16. PIANO **FWS. 1, 2, 4 hours.**

17, 18, 19. ORGAN **FWS. 1, 2, hours.**

21, 22, 23. STRING INSTRUMENT **FWS. 1, 2, 4 hours.**

24, 25, 26. BRASS INSTRUMENT **FWS. 1, 2, 4 hours.**

27, 28, 29. WOODWIND INSTRUMENT **FWS. 1, 2, 4 hours.**

34, 35, 36. PERCUSSION **FWS. 1, 2 hours.**

Division of Health Programs

Programs are offered in Associate Degree Nursing (R.N.), Practical Nursing (L.P.N.), and Medical Office Assisting.

The number of students admitted to the nursing programs is limited. Applicants need to be in good health, have satisfactory references, and show aptitude for service in the area chosen. A college committee chooses applicants for admission from those who best meet requirements.

Early application is essential. Special forms are required for Practical Nursing.

Instructional Staff: Miss Moser, Chairman; Miss Binse; Miss Erickson; Miss Hansen; Mrs. Krey; Mrs. Morrow; Mrs. Schumann; Mrs. Shuns; Mrs. Walden; Mrs. Williams.

NURSING (R.N.)

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Biology 14	5	Biology 15	4	Biology 53	5
Psychology 33	3	Psychology 22	3	Psychology 23	3
*Nursing 11	6	Home Economics 12	3	Nursing 33	6
Physical Education	1	Nursing 23	5	Physical Education	1
	17		18		17

SUMMER — Six Weeks

Nursing 44 (Psychiatric Nursing) 6 Hours

at Colorado State Hospital, Pueblo, Colorado

SECOND YEAR

Chemistry 41	3	Winter Quarter	Hours	Spring Quarter	Hours
Nursing 51	8	Nursing 52	8	Speech 11	3
Sociology 63	3	Sociology 62	3	Nursing 63	8
		Electives	3	Nursing 73	3
	14	Physical Education	1		
			15		14

*Each nursing course includes laboratory (clinical experience). For example, Nursing 11 consists of three class hours and two three-hour laboratory periods per week. The proportion of laboratory to class time increases as the student progresses in the program.

NURSING*

(Transfer)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	5	English 12	3	English 13	3
Chemistry 21	5	Chemistry 22	5	Psychology 33	3
Psychology 21	3	Sociology 62	3	Psychology 23	3
Sociology 61	3	Home Economics 12	2	Sociology 63	3
Physical Education	1	Physical Education	1	Physical Education	1
				Elective	3
	15		15		16

* This freshman year curriculum, with greater emphasis on basic physical and social sciences, is suggested for the student who wishes to transfer to a 4-year collegiate program.

Nursing (R.N.)

Initiated in September 1962, this program is fully accredited by the Colorado Board of Nursing and by the National League for Nursing. Upon completion of the prescribed course of study, the graduate receives the Associate in Science degree and is eligible to take the examination for licensure as a Registered Nurse.

The purpose of the nursing curriculum is to prepare graduates to serve as registered nurses in first level (staff nurse) positions in hospitals, nursing homes, physicians' offices, and other health agencies where adequate direction is provided.

Laboratory experiences are planned with St. Mary's, Grand Junction Osteopathic, and Veterans' Administration Hospitals, and other health and welfare agencies in the community. A six-week course in psychiatric nursing is scheduled for the summer following the first academic year, at the Colorado State Hospital in Pueblo.

Admission is based on a strong high school background, including chemistry. Preference is given to those in the upper half of the high school class, with an ACT Composite Standard score of 18 or above. Students are to have at least a 2.0 grade average in nursing courses at the end of Spring Quarter of their freshman year, and to maintain this each succeeding quarter thereafter in order to continue in the program. Courses must be successfully completed in sequence as numbered.

11. FUNDAMENTALS OF NURSING **F. 5 hours.**

The student learns and applies basic principles of nursing and cares for patients who present common nursing problems. Concepts of health care and of nursing as a profession are included. Three class hours; six laboratory hours.

22 NURSING OF ADULTS **W. 5 hours.**

Learning of basic principles is continued and applied to patients presenting certain medical and surgical conditions and nursing problems. The student learns to give complete nursing care to individual patients. Three class hours; six laboratory hours.

33. MATERNITY AND INFANT NURSING **S. 5 hours.**

The student learns to care for mothers in the pre- and post-partum period as well as during labor and delivery, and for the infants. She views the life-cycle from the focus of the family, and learns to teach parents in the care of themselves and their infants. Experience is gained in the hospital and in other health and social agencies where mothers and infants are found. Three class hours; six laboratory hours.

44. PSYCHIATRIC NURSING **Summer. 6 hours.**

Although the concepts of psychiatric and mental health nursing are integrated through the curriculum, six weeks in the summer of the first year are spent at the Colorado State Hospital in Pueblo. This time is devoted to intensive learning in relation to patients with mental and emotional disturbances. Six class hours; 24 laboratory hours.

51, 52. NURSING OF CHILDREN AND ADULTS **F and W. 8 hours.**

In these courses the student learns to care for patients of all ages presenting increasingly difficult nursing problems. Special emphasis is given to the care of children and to patients with medical-surgical conditions. The total needs of each patient are considered by the student as she plans and gives nursing care based on scientific principles. Four class hours; 12 laboratory hours.

63. PROBLEMS IN NURSING **S. 8 hours.**

Content is aimed toward meeting the needs of students as they complete the program. Student cares for patients requiring a variety of nursing measures and a higher degree of knowledge, judgment, and skill. Three class hours, 15 laboratory hours.

73. TRENDS IN NURSING **S. 3 hours.**

The history of nursing is reviewed. Special attention is given to current trends in nursing and health care, as well as changes projected for the future. The student is encouraged to assume a responsible role as a registered nurse to meet future demands.

Medical Office Assistant

Initiated in 1964, the Medical Office Assistant program is designed to prepare workers for employment in physicians' offices, hospitals, clinics, and other health agencies. For information on this program see the Vocational-Technical section of this catalog.

Practical Nursing

A 12-month course designed to prepare qualified men and women for service in hospitals and other health agencies as licensed practical nurses. Upon completion of the course, the graduate is qualified to take the licensing examination. For information please see the Vocational-Technical section of this catalog.

Division of Humanities

The aims of the Division of Humanities are to promote in students cultural awareness, critical judgment, and facility in the use of language. Students are encouraged to understand, to evaluate, to appreciate, and to participate in the forms of man's expression. With these objectives in view, students should develop enduring values, both aesthetic and utilitarian.

For suggested curricula see General Education and General Liberal Arts, Page 31

Instructional Staff: Mr. Shewalter, Chairman; Mrs. Best; Mr. Berkey; Mrs. Boschi; Mr. Frohock; Miss Fulghum; Mrs. Gademan; Mr. Johnson; Miss Lay; Mr. Dan MacKendrick; Miss Moor, Head, Department of English; Mrs. Peck; Mrs. Rick; Mrs. Robinson; Mr. Mountain, Director, Language Laboratory; Mr. Pilkenton; Mr. Sewada; Mr. Robinson, Head, Department of Speech and Drama; Mr. Carmichael; Mrs. Huffer; Mrs. Shaw, Director, Reading Laboratory.

Education

51. INTRODUCTION TO EDUCATION **FWS. 3 hours.**

A short survey of the field of education. Important aspects considered are: History of American Education, present philosophies of education, major problems of education, present practices, and the school as a social institution. Required of education majors.

English

1. ENGLISH AS A SECOND LANGUAGE **FWS. 3 hours.**

This course is for the nonnative speaker of English. It includes listening, speaking, writing, pronunciation, usage, spelling, culture, and grammar. Upon completion of the course, students receive three hours of credit toward a Mesa College Diploma. Students may begin the course any quarter, and most should take it for three quarters.

4. ENGLISH GRAMMAR **FWS. 3 hours.**

This course is a review of functional grammar and usage as well as sentence structure and mechanics. The department recommends that students who make low scores on the American College Test take this course before English 11. Credit is not intended for transfer nor for Associate Degree requirements.

11, 12, 13. ENGLISH COMPOSITION **FWS. 3 hours.**

The primary objective of this course is to develop the ability to write well-organized paragraphs and essays. History of the language and vocabulary are given attention. The first quarter stresses informal

writing; the second quarter stresses formal writing, including a research paper; the third quarter consists of the study of at least one novel and some other types of literature as well as some critical writing. The three quarters must be taken in sequence.

15. **TECHNICAL REPORT WRITING** **FWS. 3 hours.**
This course is designed to assist potential scientists, technologists, vocational technological specialists, and nurses to describe scientific processes in clear, correct, language; to construct scientific statements with logic and clarity and to be able to present them orally or in writing; to write complex business letters, to draft agreements, contracts, and research proposals with accuracy. A permitted substitute for English 13 for certain students.

21. **ENGLISH: SPELLING** **FWS. 2 hours.**
A course designed primarily to assist the student in overcoming spelling difficulties. Attention will also be given to pronunciation, meaning, and usage.

22. **ENGLISH: VOCABULARY** **FWS. 2 hours.**
This course emphasizes vocabulary improvement by means of word analysis and study of contributions from other languages. English 21 is not a prerequisite. The course is also recommended for reading improvement.

23. **ENGLISH: ADVANCED VOCABULARY** **WS. 2 hours.**
A continuation of English 22, which is a prerequisite. Study involves vocabulary study with the use of records, context, and analysis. Language of the space age and other specific areas will also be a part of the course.

31, 32, 33. **INTRODUCTION TO JOURNALISM** **FWS. 3 hours.**
A survey course in journalism including fundamentals in news and feature writing, advertising and business operations, study of outstanding newspapers, copyreading and proofreading techniques, newspaper layout, radio writing, and history of journalism. The course also includes some work in magazine writing and writing markets.

51, 52, 53. **CREATIVE WRITING** **FWS. 3 hours.**
The student is directed in practice to develop ease in written expression. Narrative exposition in the Fall Quarter, with emphasis on form and content of critical and self-analysis themes, is followed by a study of the techniques of the short story and narrative composition in the Winter Quarter; criticism, biography, and the personal essay constitute the work of the Spring Quarter. Prerequisites: English 11, 12, and 13 or English 11 and 12 with permission of the instructor.

Foreign Language

Students who have had some foreign language in high school should check with the instructors regarding placement. Since some four-year schools now require two years of study in the same foreign language, departmental instructors recommend that the student begin his study of a foreign language during his freshman year so that he will have continuity of study under the same instructor with the same method and similar materials. The foreign language department operates a laboratory consisting of a monitoring console and fifteen student booths, each equipped with a dual-channel tape recorder, earphones, and microphone. Each student works individually in his respective language by imitating the language of native speakers on specially prepared tapes on which the student records his own voice also for practice in speaking and for comparison with the language of the native speaker.

FRENCH

11, 12, 13. FIRST YEAR FRENCH **FWS. 3 hours.**

This beginning course is an introduction to the French language and culture through the use of a culturally oriented text. All four language skills are developed and stressed at the beginning and continued throughout the year.

51, 52, 53. SECOND YEAR FRENCH **FWS. 3 hours.**

This course is a review of all four language skills together with the essentials of pronunciation, grammatical structure, and clear expression through a word study of vocabulary distinctions. Students prepare some exercises, both oral and written, which are completely original. Prerequisite: Two years of high school French or one year of college French or permission of the instructor. Open to freshmen who qualify.

GERMAN

11, 12, 13. FIRST YEAR GERMAN **FWS. 5 hours.**

A three quarter sequence designed to develop basic skill in the understanding, speaking, reading, and writing of German. Initial emphasis is given to the development of the skills of understanding and speaking. As the program advances, emphasis is also given to the skills of reading and writing.

51, 52, 53. SECOND YEAR GERMAN **FWS. 3 hours.**

A review and continuation of German grammar, with further practice in understanding, speaking, reading, and writing. Selections of German literature from the earliest beginnings to modern times will be studied. Prerequisite: two years of high school German or one year of college German. Open to freshmen who qualify.

SPANISH

11, 12, 13. FIRST YEAR SPANISH **FWS. 5 hours.**

A three quarter sequence designed to develop basic skill in the understanding, speaking, reading, and writing of Spanish. Initial emphasis is given to the development of the skills of understanding and speaking. As the program advances, emphasis is also given to the skills of reading and writing.

51, 52, 53. SECOND YEAR SPANISH **FWS. 3 hours.**

A review and continuation of Spanish grammar, with further practice in understanding, speaking, reading, and writing. Readings are selected from standard Spanish and Spanish-American authors. Prerequisite: two years of high school Spanish or one year of college Spanish. Open to freshmen who qualify.

61, 62, 63. SPANISH CONVERSATION AND COMPOSITION **FWS. 2 hours.**

An advanced class stressing the building of a practical vocabulary and the use of oral and written Spanish in situations representative of contemporary living. Prerequisites: Spanish 53, four years of high school Spanish, or upon consultation. Open to freshmen who qualify.

Literature

21. CHILDREN'S LITERATURE **FWS. 3 hours.**
A course designed to give those who are interested in literature for the child an opportunity to survey the best in books. Material is judged for various grade levels as well as for preschool and special education. Skills in presenting literature to children are developed. The course is also intended for students majoring in Library Science.

31, 32, 33. WORLD LITERATURE **FWS. 3 hours.**
The student is introduced to representative literary figures of the world, to major types and forms of literary classics, and to their cultural backgrounds. British and American writers are not included because of their availability in other courses offered. Works studied include Homer, the Bible, Sophocles, Dante, Cervantes, Goethe, Moliere, Pushkin and others.

34. MYTHOLOGY (Classical) **FS. 3 hours.**
This is a one-quarter course offered to acquaint the student with the basic stories of Greek and Roman mythology which have been quoted so universally that a knowledge of them is essential to literary appreciation. Open to freshmen and sophomores. Offered Fall and Spring quarters.

35. MYTHOLOGY (Medieval) **W. 3 hours.**
This is a one-quarter course in Norse, Oriental, and Medieval Mythology. It aims to acquaint the student with the early cultures of other races as well as some of the famous stories of medieval Europe upon which many of our masterpieces of literature are based. Open to freshmen and sophomores. Offered Winter Quarter and on demand.

41. INTRODUCTION TO LITERATURE—FICTION **FWS. 3 hours.**
This study of novels by American, English and European authors of the nineteenth and twentieth centuries aims to broaden the student's knowledge of some of the world's best fiction and to acquaint the student with critical techniques in order that the student may form a basis for independent evaluation.

42. INTRODUCTION TO LITERATURE—POETRY **FWS. 3 hours.**
This course is planned to develop the students' understanding and appreciation of English and American poetry. The class analyzes poems as to form and philosophy and later the individual student engages in evaluation of representative poetry. Open to freshmen and sophomores.

43. INTRODUCTION TO LITERATURE—DRAMA **FWS. 3 hours.**
A short survey course in the development of dramatic literature beginning with the classic plays of the Greeks and continuing to the present-day theatrical writings. Open to freshmen and sophomores.

44. INTRODUCTION TO LITERATURE—BIOGRAPHY **WS. 3 hours.**
Representative writings in biography, autobiography, and biographical fiction serve to acquaint the student with the development and place in literature of these three literary types. The course aims to develop in the student some critical appreciation of biography as an art form. Open to freshmen and sophomores.

45. INTRODUCTION TO ORIENTAL LITERATURE **S. 3 hours.**
A survey of the literature of Asia, including the Near East, Middle East, and Far East. This course includes some of the great religious literature of the Orient, as well as poetry, prose, and drama.

46. INTRODUCTION TO AFRO-AMERICAN LITERATURE S. 3 hours.

This is a survey course of American Literature as represented by the best known and most talented Afro-American authors of the Nineteenth and Twentieth Centuries. Writers are selected on the basis of literary merit rather than on their political or social prominence. Among others, works by W. E. B. DuBois, Langston Hughes, James Baldwin, LeRoi Jones, Eldridge Cleaver, Paul L. Dunbar, and James Wright are included in this course.

47. INTRODUCTION TO LATIN-AMERICAN LITERATURE S. 3 hours

This is a survey course to provide an insight into the cultural background of the Spanish-American, Mexican-American, and the Indian of the Southwest. The course is designed to show the relevance of these heritages to modern American culture.

51, 52, 53. SURVEY OF ENGLISH LITERATURE FWS. 3 hours.

A course in the development of English poetry and prose from Beowulf to the present. The literature is presented against its political and social backgrounds. This course is designed to meet the requirements of those planning to major in English literature. Prerequisite: English 12.

61, 62, 63. UNITED STATES LITERATURE FWS. 3 hours

This course consisting of three quarters presents the development of American prose and poetry from the seventeenth century to the present. It aims to develop appreciation of literature and to increase the student's understanding of America as it is today through knowledge of the thought and culture of the past. Credit will be given for any single quarter. Prerequisite: English 12.

64. INTRODUCTION TO SHAKESPEARE S. 3 hours.

This course provides an opportunity for students to be introduced to one of the world's greatest literary artists. His works are prominent in all literature, and his influence on the works of other artists in many fields of the humanities is a unifying discipline for literature courses. The course will cover five or six of Shakespeare's plays, from his earliest works to his latest, to show his growth and development as a dramatist. Prerequisite: English 11, 12, 13.

Philosophy

51, 52. INTRODUCTION TO PHILOSOPHY FWS. 3 hours.

A study of the basic problems of philosophy. This is done by an examination of central issues: reality, truth, beauty, art, cosmos, faith, knowledge, ethics, morality. Selected readings from great philosophers. Lectures, readings and discussion. No prerequisite; either or both courses may be taken.

Reading

5. READING FOR THE NONNATIVE FWS. 1 hour

For students of English as a second language. This is an adjunct to English 1. Vocabulary, comprehension, oral and silent reading are included to meet student needs. May be taken for three quarters with credit toward the Mesa College Diploma.

10. READING AND STUDY SKILLS **FWS. 3 hours.**

This one-quarter course is recommended for all students whose college entrance test scores indicate a reading deficiency. A personalized approach is used to develop vocabulary, comprehension, and concentration. Study skills necessary for college success is emphasized. This course is open to all students. The class meets three times a week for three credit hours. Credit may be used for transfer, or for a diploma, or for a Mesa College degree requirement.

13. READING IMPROVEMENT **FWS. 3 hours.**

This developmental reading course stresses vocabulary, comprehension, and flexibility of rate. The course includes two hours of structured classroom work and one hour of skills practice in the Reading Center. This course is open to any student and is accepted for Mesa College degree requirements.

Speech

11, 12, 13. FUNDAMENTALS OF SPEECH **FWS. 3 hours.**

Speech 11 is a basic course in speech designed to aid the beginning speech student in acquiring poise, ease and effectiveness in speaking. Emphasis is placed on platform behavior, diction, delivery and speech organization.

Speech 12 places emphasis on the organization and delivery of the various types of speech, i.e. convincing, persuasive, informative, entertaining speeches. Speech 12 is open to any freshman or sophomore who has completed Speech 11 or who has successfully completed two years of high school speech with an overall B average.

Speech 13 is a continuation of Speech 12 with greater emphasis upon the longer speech, i.e. after dinner speaking, public address and book reviews, plus a study of classical speeches.

15. ORAL INTERPRETATION **S. 3 hours.**

This course places emphasis on the oral reading of prose, poetry and drama in an expressive and artistic manner. Diction, quality of tone and meaning of material receive special attention.

16. VOICE AND DICTION **F., W. or S. 3 hours**

A study of the development and use of the speaking voice with emphasis on voice placement, speech sounds and the phonetic alphabet.

23. RADIO-TELEVISION SPEECH **F. 3 hours.**

Microphone techniques and radio announcing for all students interested in improving their oral reading. Communication of ideas, voice control and general American pronunciation. Tape-recorded projects.

24. RADIO-TELEVISION WRITING **W. 3 hours.**

Analysis and preparation of station announcements, program formats, commercials, news, musical introductions and short plays.

25. TELEVISION PRODUCTION **S. 3 hours.**

Analysis and preparation of short television programs.

27, 28. DEBATE **FW. 3 hours.**

Instruction and participation in Argumentation, Debate, Original Oratory and Extemporaneous Speaking with an opportunity to enter intercollegiate competition.

29. DISCUSSION **S. 3 hours.**

This course is offered to provide another three hours credit for students interested in discussion. The topics for discussion are changed each year, and thus it is not repetitious in nature or content.

45, 46, 47. PROBLEMS IN SPEECH **FWS. 1 hour.**

This is an independent study course which includes special problems and work in speech and/or speech activities. Each course has the credit value of one hour with the possibility of three credit hours to be earned by pursuing the total sequence. The course is designed to permit students to attain more proficiency and activity in the speech program.

51, 52. DEBATE **FW. 3 hours.**

This is a continuation of Debate 27, 28.

53. DISCUSSION **S. 3 hours.**

This course is primarily designed to teach the student fundamentals and techniques of problem solving through cooperative group discussion efforts. Emphasis will be placed on committee membership aims and techniques.

Division of Mathematics and Engineering

It is the function of the Division of Mathematics and Engineering to offer courses which

1) enable a student to complete two years of study before transferring to another college to complete the requirements for a baccalaureate degree in Mathematics or Engineering.

2) enable a student majoring in another area to complete a minor in Mathematics or Engineering.

3) will be a service to other divisions for students majoring in areas such as Business, Science, Pre-Professional, and Vocational-Technical.

Instructional Staff: Mr. Davis, Chairman; Mr. Bailey; Mr. Britton; Miss Hafner; Mr. Hawkins; Mr. Henson; Mr. Horn; Mr. Kerns; Mr. Luke; Mr. Murray; Mr. Phillips; Mr. Ramsey.

ENGINEERING

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Mathematics 50	5	Mathematics 51	5	Mathematics 52	5
Chemistry 31	5	Chemistry 32	5	Physics 51	5
English	3	English 12	3	Physical Education	1
Engineering 11 or 12	3	Engineering 11 or 12	3	Engineering or Elective	5
Physical Education	1	Soc. Sci. or Humanities	3	Chemistry 33	5
	17		19		19

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Mathematics 53	5	Mathematics 63	5	Mathematics 65	5
Physics 52	5	Physics 53	5	Engineering 63	4
Engineering 61	4	Engineering 32	4	Fluids	4
Soc. Sci. or Humanities	3	Engineering 62	4	Soc. Sci. or Humanities	3
	17		18	Physical Education	1
					17

* Civil Engineering students take Surveying. To qualify for the Associate in Science degree electives must be in social science or literature.

Students should consult with advisors regarding requirements of the Engineering School of their choice. Some students may qualify for advanced placement, others may need additional study prior to embarking on this program.

MATHEMATICS

Associate in Arts or Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	Eng. 13 or Humanities	3
Mathematics 50	5	Mathematics 51	5	Mathematics 52	5
Chemistry 31	5	Chemistry 32	5	Chemistry 33	5
History 11	3	History 12	3	History 13	3
		Engineering 22	1	Math 23	1
	16		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 51	5	Physics 52	5	Physics 53	5
Mathematics 53	5	Mathematics 55	5	Mathematics 66	5
Speech 11	3	Engineering 62 or Elec.	4	Engineering 63 or Elec.	4
Physical Education	1	Physical Education	1	Physical Education	1
Elective	3	Elective	3	Elective	3
	17		18		18

Engineering

10. BASIC ENGINEERING DRAWING **F. 3 hours.**

A course for students with little background for mechanical drawing and those who lack the basic fundamentals of drawing necessary for working with the space relationships of descriptive geometry. The course includes use of drawing instruments, lettering, geometric constructions, principles of orthographic projection, technical sketching, sectional and auxiliary views. Two lectures and four laboratory periods per week.

11. INTRODUCTION TO FORTRAN PROGRAMMING **FWS. 3 hours.**

Various math, science, and engineering problems are put in FORTRAN language and then run on the high speed computer. Emphasis will be on logic, flow charting, input and output. Prerequisite: Mathematics 22 or equivalent.

12. ENGINEERING GRAPHICS AND DESIGN I **FW. 3 hours.**

An introductory course in engineering graphics emphasizing creative engineering design. Topics include creative design, freehand sketching, projection systems, dimensioning, descriptive geometry, and conventional practices as they are applied in the design process.

13. ENGINEERING GRAPHICS AND DESIGN II **S. 3 hours.**

A continuation of engineering graphics including a detailed study of manufacturing and production processes, computer aided graphic design, and graphical representation of design data, all of which will be applied to creative design problems. Prerequisites: Engineering 11 and 12.

14. FORTRAN AND ENGINEERING PROBLEMS **S. 3 hours.**

Implied Do-loops. 2 and 3 Dimensional Arrays—Common Storage-Equivalence statements. Problems dealing with arrays and subscripted variables. Computed Go To. Problems using function subprograms—external statements. Read and Write statements—transferring data to and from tape. Namelist statements.

22. SLIDE RULE **FW. 1 hour.**
Theory and operation of the slide rule, including use of trigonometric scales and log log scales. Prerequisite: Students must have had or must be taking concurrently a course in trigonometry.

62. STATICS **W. 4 hours.**
Topics include principles of statics, study of vectors, forces and couples, force systems and their resultants, force systems if equilibrium (truss analysis, flexible cables, cranes), static friction (pivot and belt), centroids, radii of gyration of areas and masses, and moments of inertia. Prerequisite: Mathematics 51 and Physics 51, and to be taken concurrently with Mathematics 52.

63. DYNAMICS **S. 4 hours.**
Principles of dynamics. Topics include angular and linear displacement, velocity and acceleration of particles and rigid bodies in motion, simple vibrations, and applications of principles of force-mass-acceleration, work-kinetic energy, the impulse-momentum to solution of problems of force systems acting on moving particles and rigid bodies. Prerequisites: Engineering 62 and Mathematics 52.

65. FLUID MECHANICS **S. 4 hours.**
Basic concepts of fluid mechanics. Fluid properties, fluid statics and introduction to dynamics, momentum equation, mechanical energy equation, applications to laminar and turbulent flow. Co-requisite: Engineering 63.

71. ELEMENTARY SURVEYING **F. 3 hours.**
An introduction to the principles of surveying and mapping; familiarization with the basic instruments and their use. Two lectures and two laboratory periods per week. Prerequisites: Mathematics 29 or Mathematics 23.

72. SURVEYING: CURVES AND EARTHWORK **W. 3 hours.**
The course includes calculations and field procedures for surveying circular, spiral and parabolic curves; route planning, location and design; measurement and computation of earthwork quantities; and slope staking. Two lectures and two laboratories per week. Prerequisite: Engineering 71.

73. ADVANCED SURVEYING **S. 3 hours.**
Celestial observations to determine latitude, longitude, and true azimuth, photogrammetry, triangulation, state plane coordinate systems, and computer applications in surveying. Two lectures and two laboratories per week. Prerequisites: Engineering 71 and Engineering 72.

74. TOPOGRAPHICAL SURVEYING **F. 3 hours.**
The fundamentals of map-making. Includes use of Plance Table and alidade, basic control, contour mapping, map reading. Taught primarily for non-engineers who are students in related fields; i.e., Forestry, Geology, Archaeology, etc. Offered only if sufficient demand. Three lectures and one laboratory period per week. Prerequisite: Mathematics 21 or equivalent.

81, 82, 83. CIRCUIT ANALYSIS I, II, III **FWS. 4 hours.**
A general introduction to the analysis of any system of interconnected components with special emphasis on electrical circuits. The first quarter is devoted to establishing the essential features of the analysis scheme. The second quarter is concerned with the application of specialized techniques to electrical systems using the analysis scheme. Required of all engineers. Prerequisites: Mathematics 51 and Physics 51 with completion or concurrent enrollment in Physics 52.

Mathematics

1. BASIC MATHEMATICS **F. 3 hours.**

Designed to reinforce the students' knowledge of basic arithmetic processes. Includes a review of addition, subtraction, multiplication, and division of whole numbers, followed by a more careful treatment of decimals and fractions. Evaluation of formulas, areas, volumes, unit conversion, powers and roots of numbers.

2. BASIC ALGEBRA **FW. 5 hours.**

An introduction to algebra for the student having no algebra background or who is not sufficiently prepared to undertake College Algebra. A study is made of basic algebraic processes: operations with signed numbers and literal expressions, linear equations, fractions, factoring, simultaneous equations, graphs, and quadratic equations.

15, 16, 17. ELEMENTS OF MATHEMATICS I, II, III **FWS. 3 hours.**

A course for prospective teachers in the elementary schools. Presents some of the basic principles which underlie mathematical processes and mathematical reasoning. Includes some areas of classical mathematics which are necessary for a working knowledge of the subject. Topics include logic and mathematical reasoning, number systems, some fundamental properties of geometric forms, the concept of a function, linear and quadratic functions, and some characteristics of modern mathematics. Prerequisite: Consent of instructor.

21. COLLEGE ALGEBRA **FW. 5 hours.**

The systems of integers, rational numbers, real numbers, and complex numbers are studied. Quadratic, exponential, and logarithmic functions, as well as some topics from matrices and the theory of equations, are included. Prerequisite: Mathematics 2 or a full year of modern second-year high school algebra.

22. DATA PROCESSING MATHEMATICS **WS. 5 hours.**

This course is directed to those students who are studying in the fields of data processing and computer programming. Included are applications of number systems with other bases to computers, some number theory, matrix methods, linear programming, study of logic, Boolean algebra, introduction to trigonometry, and the study of sets as applied to the computer. Prerequisite: Mathematics 21 or equivalent.

23. TRIGONOMETRY **FWS. 5 hours**

Emphasizes the circular and trigonometric functions and methods of solving right and oblique triangles. The inverse trigonometric functions, conditional equations, and trigonometric identities are included. Complex numbers are covered through DeMoivre's Theorem. Also the study of spherical trigonometry with emphasis on solutions of spherical triangles is embraced. Prerequisite: Mathematics 21 or equivalent.

27. MATHEMATICS OF FINANCE **S. 5 hours.**

Mathematical methods to the solution of business problems. Important definitions and formulas will be illustrated by carefully selected problems. Topics will include investment, scientific method, break-even analysis, probability and annuity problems. Prerequisite: Mathematics 23 or consent of instructor.

28. COLLEGE ALGEBRA AND TRIGONOMETRY **FWS. 5 hours.**

This is a course in freshman mathematics for the mathematics or science student. Topics include properties of the real number system, equations and inequalities in one variable, and polynomial, rational, exponential, logarithmic, circular, and trigonometric functions. Prerequisite: Mathematics 21, or 3 years of high school mathematics and a good mathematics entrance exam score. (Trigonometry recommended).

29. COLLEGE ALGEBRA AND TRIGONOMETRY **FW. 5 hours.**

A continuation of Mathematics 28. Topics include inverse circular functions and conditional equations, matrices and determinants, systems of equations, complex numbers and vectors, sequences, series, math induction, the binomial theorem, and some probability. Prerequisite: Mathematics 28, or 3 years of high school mathematics (including trigonometry) and a good mathematics entrance exam score.

31. PROGRAMMABLE CALCULATOR **S. 1 hour.**

Theory and operation of the programmable calculator. Prerequisite: Mathematics 23 or consent of instructor.

35. INTRODUCTION TO PROBABILITY AND STATISTICS **WS. 5 hours.**

An introductory course in statistics and statistical methods, primarily intended for the agricultural sciences, business administration, economics, home economics, psychology, sociology, geology, and the medical sciences. Examples and exercises have been chosen from all of these subject areas. Some of the topics discussed are: analysis of data, elementary probability, binomial distribution, random sampling, student's t-distribution, regression and correlation, chi-square, F-distribution, and analysis of variance. Prerequisite: Mathematics 29 or consent of instructor.

50. ANALYTIC GEOMETRY WITH CALCULUS **FWS. 5 hours.**

A combined course of analytic geometry and calculus. Fundamental principles of beginning analytic geometry, including different forms of the equations of straight line, circles, and parabolas. Elementary phases of limits, continuity, derivations, and various applications of these topics are considered. Prerequisite: Mathematics 29 or equivalent.

51. CALCULUS **FWS. 5 hours.**

A continuation of Mathematics 50. Differential and integral calculus combined with analytic geometry, together with applications. Special emphasis in calculus on the transcendental functions. Prerequisite: Mathematics 50.

52. CALCULUS **FWS. 5 hours.**

A continuation of Mathematics 51, with special emphasis placed on polar coordinates, conic sections, hyperbolic functions, and vectors in a plane. The formulas and methods of integration and applications of integration are covered. Prerequisite: Mathematics 51.

53. **CALCULUS** **FWS. 5 hours.**

The last course in the sequence of courses in analytic geometry and calculus. This course is designed to cover the topics of vectors in three-dimensions, partial derivatives of functions of several variables, multiple integration, and infinite series. Prerequisite: Mathematics 52.

60. **SPECIAL PROBLEMS IN COMPUTER SCIENCE** **S. 3 hours.**

Elementary numerical analysis using the high speed computer. Much work will be done with subprogramming. Topics that may be considered are Taylor's Theorem, Truncating Errors, Iteration Processes, least square methods. Prerequisite: Engineering 11 and Mathematics 52.

63. **INTRODUCTION TO DIFFERENTIAL EQUATIONS** **WS. 5 hours.**

An introduction to the formal study of differential equations with applications. Some of the topics covered are: equations of order one, elementary applications, nonhomogeneous equations, variation of parameters, inverse differential operators, Laplace transforms, and nonlinear equations. Prerequisite: Mathematics 53 or consent of instructor.

66. **INTRODUCTION TO LINEAR ALGEBRA** **S. 5 hours.**

This course is designed to give students a foundation so that they can apply the notions and techniques of the algebra and geometry of vector spaces, linear transformations and matrices, linear equations, quadratic forms and symmetric matrices, and elementary Eigenvalue Theory. Also prepares the student for advanced work by developing his powers of abstract reasoning. Prerequisite: Mathematics 53.

Division of Physical Education

The Division of Physical Education provides an instructional program in physical education activities for all students. The program is designed to secure optimum health and physical fitness, based on the individual needs and interests of the students. All regular or full-time students, except one-year business students and adults over twenty-five, are required to take a physical education activity for a minimum of three quarters unless physically unable as evidenced by a doctor's certificate.

Instructional Staff: Mr. Nelson, Chairman; Mr. Bergman; Mr. Brunelli; Mr. England; Mrs. Humphries; Mr. Perrin; Mrs. Tolman; Mr. Tooker.

PHYSICAL EDUCATION

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Biology 11	3	Biology 12	3	Biology 13	3
Physical Science 11	3	Physical Science 12	3	Physical Science 13	3
Social Science	3	Social Science	3	Social Science	3
HPS 42	3	HPE 48	3	HPE 49	2
HPE 47	2	PE Activity	1	HPE 41	3
	17		16		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biology 14	5	Biology 15	3	Psychology 74	5
Literature	3	Literature	3	Education 51	3
Psychology 21	3	Psychology 22	3	Literature	3
HPE 51	2	HPE 52	2	HPE 53	2
HPE 44	3	HPE 43	3	HPE 20	2
	16	PE Activity	1	PE Activity	1
			15		16

Health and Physical Education

HPE 20. FIRST AID **FWS. 2 hours.**

A course in which the student learns the proper emergency first aid techniques to deal with personal or community disaster. The American National Red Cross course content is used and an ARC Standard or Advanced certificate is issued to qualified students. Lecture and laboratory.

HPE 21. LIFESAVING **FWS. 2 hours.**

A course designed to provide the interested student with a basic water safety and lifesaving skills background. The American National Red Cross course content is used and an ARC Senior Lifesaving certificate is issued to qualified students. Lecture and laboratory.

HPE 22. WATER SAFETY INSTRUCTOR'S COURSE **S. 2 hours.**

A course designed to provide the student with the skills and techniques necessary to teach all aspects of the swimming and diving program. The American National Red Cross course content is used and an ARC W.S.I. certificate is issued to qualified students. Lecture and laboratory. Prerequisite: ARC Senior Lifesaving certification.

HPE 23. INSTRUCTOR'S COURSE IN FIRST AID **S. 2 hours.**

A course designed to provide the student with the skills and techniques necessary to teach all aspects of first aid. The American National Red Cross course is used and an ARC F.I.A. certificate is issued to qualified students. Lecture and laboratory. Prerequisite: ARC Advanced First Aid certification.

HPE 41. PERSONAL AND COMMUNITY HEALTH **S. 3 hours.**

A course designed to acquaint the student with the health problems of the community, as well as personal health problems. Emphasis on development of proper attitudes and health practices. Lecture and laboratory.

HPE 42. INTRODUCTION TO PHYSICAL EDUCATION **F. 3 hours.**

A course to acquaint the students with the background, growth, philosophical basis, and current trends in physical education. Designed for physical education majors. Lecture. Recommended for Freshman majors.

HPE 43. SPORTS OFFICIATING **W. 3 hours.**

A class for physical education majors wishing to acquaint themselves with the skills and techniques of officiating the three major sports: football, basketball, and baseball. Lecture and laboratory. Sophomore standing recommended.

HPE 44. ORGANIZATION AND ADMINISTRATION OF INTRAMURALS **F. 3 hours.**

A course designed for physical education majors or individuals interested in the organization and administration of the secondary or college level intramural program. Lecture and laboratory. Sophomore standing recommended.

HPE 47. THEORY AND PRACTICE OF SPORTS **F. 2 hours.**

Men majors: Fundamental skills in football and basketball. Lecture and laboratory.

Women majors: Fundamental skills in field hockey and speedball. Lecture and laboratory.

Freshman physical education majors are encouraged to take HPE 47 and continue through the entire Theory and Practice series while attending Mesa College.

HPE 48. THEORY AND PRACTICE OF SPORTS **W. 2 hours.**

Coeducational class dealing with the fundamentals of volleyball. Lecture and laboratory.

HPE 49. THEORY AND PRACTICE OF SPORTS **S. 2 hours.**

Coeducational class dealing with the fundamentals of swimming. Lecture and laboratory.

HPE 51. THEORY AND PRACTICE OF SPORTS **F. 2 hours**

Coeducational class dealing with the fundamentals of badminton. Lecture and laboratory.

HPE 52. THEORY AND PRACTICE OF SPORTS **W. 2 hours.**

Coeducational class dealing with the fundamentals of gymnastics, tumbling, and trampoline. Lecture and laboratory.

HPE 53. THEORY AND PRACTICE OF SPORTS **S. 2 hours.**

Coeducational class dealing with the fundamentals of track and field. Lecture and laboratory.

Physical Education Activities

PE 11. SWIMMING
PE 12. DIVING
PE 13. BOWLING
PE 14. GOLF
PE 15. BADMINTON
PE 16. SQUARE AND FOLK DANCE
PE 17. SOCIAL DANCE
PE 18. MODERN DANCE
PE 19. ARCHERY
PE 20. TENNIS
PE 21. SKIING
PE 23. HANDBALL
PE 24. WEIGHT TRAINING (MEN)
PE 25. WRESTLING (MEN)
PE 26. TRACK AND FIELD
PE 28. BODY IMPROVEMENT (WOMEN)
PE 30. SCUBA
PE 33. GYMNASTICS
PE 51. SOFTBALL
PE 52. VOLLEYBALL
PE 53. FLAG FOOTBALL
PE 54. SOCCER
PE 55. BASEBALL
PE 56. BASKETBALL
PE 57. SPEEDBALL
PE 59. FIELD HOCKEY
PE 60. RUGBY
PE 71. VARSITY FOOTBALL
PE 72. VARSITY BASKETBALL
PE 73. VARSITY BASEBALL
PE 74. VARSITY WRESTLING
PE 75. VARSITY TENNIS
PE 77. VARSITY TRACK
PE 78. VARSITY SKIING
PE 91. STEPPERETTES

NOTE: All classes are coeducational unless specified otherwise. Not all classes are offered each quarter. Students must select required activity courses so as to have credit in three differently numbered courses. Each activity course is for one credit hour.

Division of Physical Sciences

It is the intent of the Physical Science Division to offer courses which will enable students to

1) pursue the cultural aspects of scientific subjects.

2) prepare for advanced work in scientific education.

3) prepare for technicians' work in the various physical science fields.

Instructional Staff: Mr. McNew, Chairman; Mr. Allnaras; Mr. Boge; Mr. Fynn; Mr. Johnson; Mr. Lenc; Mr. Putnam; Mr. Roadifer; Mr. Scott; Mr. White; Mr. Young.

TWO-YEAR CHEMISTRY PROGRAM

Associate in Science

FIRST YEAR

Fall Quarter	Hours
English 11	3
Chemistry 31	4
Mathematics 28	5
Chemistry 31 Lab.	1
Chemistry 11	1
Pol. Sci. or Lit.	3
	17

Winter Quarter	Hours
English 12	3
Chemistry 32	4
Mathematics 29	5
Chemistry 32 Lab.	1
Pol. Sci. or Lit.	3
	16

Spring Quarter	Hours
English 15	3
Chemistry 33	4
Mathematics 50	5
Chemistry 33 Lab.	1
Pol. Sci. or Lit.	3
	16

SECOND YEAR

Fall Quarter	Hours
Mathematics 51	5
Chemistry 51	3
Chemistry 54	2
Physics 41	4
Physical Education	1
Physics 41 Lab.	1
	16

Winter Quarter	Hours
Chemistry 52	3
Chemistry 55	2
Physics 42	4
Physical Education	1
Elective	3
Physics 42 Lab.	1
	14

Spring Quarter	Hours
Chemistry 53	3
Chemistry 56	2
Physics 43	4
Physical Education	1
Physics 43 Lab.	1
Elective	3
	14

CHEMISTRY

Associate in Science

FIRST YEAR

Fall Quarter	Hours
English 11	3
Chemistry 31	4
Mathematics 28	5
Pol. Sci. or Lit.	3
Chemistry 11	1
Chemistry 31 Lab.	1
	17

Winter Quarter	Hours
English 12	3
Chemistry 32	4
Mathematics 29	5
Pol. Sci. or Lit.	3
Physical Education	1
Chemistry 32 Lab.	1
	17

Spring Quarter	Hours
English 15	3
Chemistry 33	4
Mathematics 50	5
Pol. Sci. or Lit.	3
Physical Education	1
Chemistry 33 Lab.	1
	17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Chemistry 51	3	Chemistry 52	3	Chemistry 53	3
Chemistry 54	2	Chemistry 55	2	Chemistry 56	2
Mathematics 52	5	Mathematics 52	5	Mathematics 53	5
Physics 51	4	Physics 52	4	Physics 53	4
Physical Education	1	Elective	2	Elective	2
Physics 51 Lab.	1	Physics 52 Lab.	1	Physics 53 Lab.	1
	16		17		17

PRE-DENTISTRY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
Mathematics 21	5	Mathematics 23	5	Biology 43	4
Chemistry 11	1	Biology 42	4	Biology 43 Lab.	1
Biology 41	4	Biology 42 Lab.	1	Speech 11	3
Biology 41 Lab	1				
	19		18		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 41	4	Physics 42	4	Physics 43	4
Physics 41 Lab.	1	Physics 42 Lab.	1	Physics 43 Lab.	1
Chemistry 51 and 54	5	Chemistry 52 and 55	5	Chemistry 53 and 56	5
Psychology 21	3	Psychology 22	3	Psychology 23	3
Physical Education	1	Physical Education	1	Physical Education	1
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
	17		17		17

GEOLOGY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geology 31	4	Geology 32	4	Geology 33	4
Geology 31 Lab.	1	Geology 32 Lab.	1	Geology 33 Lab.	1
English 11	3	English 12	3	English 13 or 15	3
Biology 21	4	Biology 31	4	Physics 10	4
Biology 21 Lab.	1	Biology 31 Lab.	1	Physics 10 Lab.	1
Mathematics 28	5	Mathematics 29	5	Mathematics 50	5
	18		18		19

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geology 52	2	Geology 53	2	Geology 54	3
Geology 52 Lab.	1	Geology 53 Lab.	1	Geology 54 Lab.	1
Geology 61	2	Geology 62	2	Geology 63	2
Geology 61 Lab.	1	Geology 62 Lab.	1	Geology 63 Lab.	1
Chemistry 21 or 31	4	Chemistry 22 or 32	4	Chemistry 23 or 33	4
Chemistry Lab.	1	Chemistry Lab.	1	Chemistry Lab.	1
Speech 12*	3	Forestry 22*	3	Elective*	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
	17		17		18

* Earth Science majors should substitute Physical Science 21, 22, 23.

PRE-MEDICINE*
AND PRE-VETERINARY MEDICINE

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Mathematics 28	5	Biology 42	4	Biology 43	4
Physical Education	1	Mathematics 29	5	Mathematics 50	5
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
Biology 41	3	Biology 42 Lab.	1	Biology 43 Lab.	1
Chemistry 11	1				
Biology 41 Lab.	1				
	19		18		18

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 51	4	Physics 52	4	Physics 53	4
Biology 51	4	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Soc. Sci. or Lit.	3	Chem 52 & 55	5	Chem 53 & 56	5
Chem. 51 & 54	5	Elective	2	Elective	2
Physics 51 Lab.	1	Physical Education	1	Physical Education	1
Biology 51 Lab.	1	Physics 52 Lab.	1	Physics 53 Lab.	1
	18		16		16

*It is recommended that pre-medical students work toward a major in either biology or chemistry. Students should be aware that many medical schools are now requiring mathematics through calculus and thus it may be advisable to alter the second year program to include calculus unless the student is assured that calculus is not required.

PRE-OPTOMETRY AND PRE-PHARMACY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Mathematics 28*	5	Mathematics 29	5	Mathematics 50	5
Biology 41	3	Biology 42	4	Biology 43	4
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Biology 41 Lab.	1	Biology 42 Lab.	1	Biology 43 Lab.	1
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
	17		18		18

*Students with a deficiency in mathematics will replace the indicated course with: Math 21, Fall Quarter; Math 28, Winter Quarter; and Math 29, Spring Quarter.

SECOND YEAR* (Pre-Optometry)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Psychology 21	3	Psychology 23	3	Psychology 23	3
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Biology 51	4	Speech 11	3	Biology 53	4
Biology 51 Lab.	1	Elective	2	Biology 53 Lab.	1
Physics 41	4	Physics 42	4	Physics 43	4
Physics 41 Lab.	1	Physics 42 Lab.	1	Physics 43 Lab.	1
Physical Education	1	Physical Education	1	Physical Education	1
	17		17		17

*Consult with counselor regarding Mathematics 51, 52, 53 for Optometry.

SECOND YEAR (Pre-Pharmacy)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 41	4	Physics 42	4	Physics 43	4
Economics 51	3	Economics 52	3	Economics 53	3
Chem 51 & 54	5	Chem 52 & 55	5	Chem 53 & 56	5
Speech 11	3	Non-Professional Elect.	3	Non-Professional Elect.	3
Physics 41 Lab.	1	Physics 42 Lab.	1	Physics 43 Lab.	1
	16		16		16

PHYSICAL SCIENCE*

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Mathematics 28	5	Mathematics 29	5	Mathematics 30	5
Chem. 31 or Geol. 31	4	Chem. 32 or Geol. 32	4	Chem. 33 or Geol. 33	4
Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3	Soc. Sci. or Lit.	3
Chem. or Geol. Lab.	1	Chem. or Geol. Lab.	1	Chem. or Geol. Lab.	1
	16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 51	4	Physics 52	4	Physics 53	4
Mathematics 51	5	Mathematics 52	5	Mathematics 53	5
Chemistry 51 and 54 or electives	5	Chemistry 52 and 55 or electives	5	Chemistry 53 and 56 or electives	5
Physical Education	1	Physical Education	1	Physical Education	1
Physics 51 Lab.	1	Physics 52 Lab.	1	Physics 53 Lab.	1
	16		16		16

*Students with a deficiency in mathematics will make the same substitutions suggested in the Engineering curriculum.

Chemistry

11. CHEMICAL PROFESSIONS **F. 1 hour.**

This course is designed to assist the student in assessing his abilities and desires to pursue professions requiring a considerable background of chemistry. It also covers methods of study for scientific fields and is intended to be valuable in the pre-professional programs leading to the study of medicine, dentistry, pharmacy, chemists and chemical assistants.

12, 13. CHEMICAL PROFESSIONS **WS. 1 hour.**

Courses designed to continue the study of the chemical professions and the various techniques, instruments and materials used in chemistry and chemical analyses.

21, 22. GENERAL CHEMISTRY **FWS. 4 hours.**

A lecture course in fundamental principles of chemistry and their application. The areas covered include atomic structure, bonding, periodic laws, gas laws, mass relationships, classification of compounds, oxidation-reduction, electrochemistry and ionic equilibrium. Designed for students in Liberal Arts, Nursing, Homemaking and Agriculture. Prerequisites: High School algebra or satisfactory entrance examination scores. Four lectures per week.

21, 22. GENERAL CHEMISTRY LABORATORY **FWS. 1 hour.**

The laboratory sessions are designed to acquaint the student with the instruments and procedures used in basic chemistry. The work involves metric measurement, observation of chemical changes, and observation of the physical properties of some elements and a few select ions and compounds. The laboratory gives the student a chance to observe, discover, and report. The elementary properties of matter and the work undertaken enhances the classroom study. One three-hour session per week.

23. INTRODUCTION TO ORGANIC CHEMISTRY **S. 4 hours.**

A lecture course in fundamentals of Organic Chemistry. Four lectures per week. Prerequisite: Chemistry 22 or 32.

23. INTRODUCTION TO ORGANIC CHEMISTRY LABORATORY **S. 1 hour.**

Basic organic procedures are undertaken enabling the student to (1) observe the properties of organic compounds, (2) identify organic compounds, and (3) undertake an organic preparation. One three-hour session per week.

31, 32. GENERAL INORGANIC CHEMISTRY **FW. 4 hours.**

Fundamental principles and applications of general inorganic chemistry. The areas covered include atomic structure, periodic law, gas laws, kinetic theory, stoichiometry, bonding, oxidation-reduction, thermodynamics, electrochemistry, and chemical equilibrium. Designed for Chemistry, Pre-Medicine, Pre-Veterinary Medicine, Engineering and other science majors. Mathematics 21 or Mathematics 28 must be taken prior to, or concurrently with, this course. Prerequisites: High School Chemistry and satisfactory entrance examination score, or Chemistry 21. Four lectures per week.

31, 32. GENERAL INORGANIC CHEMISTRY LABORATORY **FW. 1 hour.**

The laboratory work consists of an introduction of gravimetric, volumetric, and instrumental quantitative analysis. One three-hour session per week.

33. INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS **S. 3 hours.**

A lecture course designed to thoroughly acquaint the student with the equilibrium systems of Inorganic Chemistry in a theoretical and practical way with emphasis on the broad view of inorganic chemistry. Three lectures per week.

33. INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS LABORATORY **S. 2 hours.**

This laboratory consists of two three-hour sessions per week with a total of six hours. The work undertaken consists of a study of a few selected equilibrium systems of inorganic chemistry. To facilitate this study, qualitative analysis is intermixed with many ion concentration determinations.

41. INTRODUCTORY INORGANIC, ORGANIC AND PHYSIOLOGICAL CHEMISTRY **F. 3 hours.**

A lecture course designed to investigate principles of Inorganic Chemistry, Organic Chemistry, and Biochemistry. It is intended primarily for persons pursuing the Associate Degree Nursing Program and the Medical Office Assistant Program. Prerequisite: High School Chemistry or Chemistry 21.

51, 52, 53. ORGANIC CHEMISTRY **FWS. 3 hours.**

Lectures and discussions concerning the chemical and physical properties of the major classes of organic compounds. Mechanistic, stereochemical acid-base, and related theories are used throughout to relate and unify the various parts of the subject. Course may be taken with or without accompanying laboratory. Prerequisite: Chemistry 32 or consent of the instructor.

54, 55, 56. ORGANIC CHEMISTRY LABORATORY **FWS. 2 hours.**

Laboratory exercises to accompany Chemistry 51, 52, 53. Provides experience in the syntheses and with the reactions of many classes of compounds. Classical qualitative analysis is introduced. Some experience with methods used to establish theoretical principles is also obtained.

Geology

21, 22, 23. EARTH SCIENCE **FWS. 4 hours.**

A general approach to the broad aspects of geology and closely related fields. The earth's environment in space, its atmosphere, hydrosphere, and composition are considered fall quarter. The winter quarter study of earth processes is expanded during spring quarter to consider the origin and physical changes of the earth and the evolution of life forms throughout earth history. Designed for non-science majors without any previous earth science experience, who need a laboratory science (refer to lab description). Should be taken in sequence. Four lectures.

21, 22, 23. EARTH SCIENCE LABORATORY **FWS. 1 hour.**

Consists of weekly two hour lab investigations and one or more field trips per quarter. Should be taken concurrently with Earth Science Lecture. Fall quarter involves map interpretation and mineral and rock examination. Topography and structure of the earth are investigated winter quarter by use of photos, maps, and cross-sections. Interpreting regional and general geologic history by examining the rock sequence and fossil specimens concludes spring quarter.

31, 32. GENERAL GEOLOGY **FW. 4 hours.**

A study of the earth, its materials, development of landforms and the geologic processes acting on and within the earth. Designed as an introductory course for geology and other science majors. Should be taken in sequence. Four lectures per week.

31, 32. GENERAL GEOLOGY LABORATORY **FW. 1 hour.**

A laboratory course designed to supplement the General Geology lecture course. Devoted to the study of rocks and minerals and the study and interpretation of topographic and geologic maps. Should be taken in sequence. May be taken separately or in conjunction with lecture. Meets for two hour sessions or field trip each week.

33. HISTORICAL GEOLOGY **S. 4 hours**

Origin of the earth and development of the earth's crust through geologic time. Includes the evolution of life forms in the fossil record. Four lectures per week. Prerequisite: Geology 22 or 32.

33. HISTORICAL GEOLOGY LABORATORY **S. 1 hour.**

Interpretation of geologic maps and aerial photographs and study of representative fossils. Several field trips to study local geologic sections. One all-day field trip. One day per week for two hours.

41. ENVIRONMENTAL EARTH SCIENCE STUDIES **FWS. 2 hours.**

A two-quarter hour course for students planning a career in research management and environmental control. Individual study of the local area and a seminar format are used to build a foundation of knowledge to be utilized in solving environmental problems. Open to advanced students upon consultation.

51. ROCKY MOUNTAIN GEOLOGY **S. 3 hours.**

A study of the physical and historical geology of the Western Colorado region, primarily in the field. One lecture per week and one 3-hour laboratory plus four all-day field trips and four half-day field trips. Prerequisite: Geology 33.

52, 53. PALEONTOLOGY **FW. 2 hours.**
The morphology, classification, evolution, ecology, methods and uses of fossil invertibrates. Two lectures per week. Prerequisite: Geology 23 or 33.

52, 53. PALEONTOLOGY LABORATORY **FW. 1 hour.**
Identification and environmental connotations of representative fossil invertibrates. One or more field trips each quarter. One day per week for two hours.

54. STRATIGRAPHY **S. 3 hours.**
A study of the formation, composition, sequence, correlation, description and classification of stratified rocks of the earth's crust. Three lectures per week. Prerequisite: Geology 52.

54. STRATIGRAPHY LABORATORY **S. 1 hour.**
Field trips to study local stratigraphic units. One field trip per week.

61. CRYSTALLOGRAPHY **F. 2 hours.**
A study of the solid state of matter, the crystalline state, morphological crystallography, crystal classification and crystal chemistry. Also a study of crystal models and natural crystals. Two lectures per week. Prerequisite: Chemistry 31, Geology 21 or 31, or consent of the instructor.

61. CRYSTALLOGRAPHY LABORATORY **F. 1 hour.**
Crystals and crystal models are measured, studied, and classified. Different methods of describing and illustrating crystals are learned.

62, 63. MINERALOGY **WS. 2 hours.**
Physical properties, description, occurrence, association and identification of the more common minerals; physics and chemistry of minerals; mineral uses. Two lectures per week. Prerequisite: Geology 61.

62, 63. MINERALOGY LABORATORY **WS. 1 hour**
Chemical techniques for identifying certain elements and ions are studied in relation to mineral groups. Unknown minerals are identified and the physical and chemical properties and origins of many minerals are learned.

Physical Science

11, 12, 13. SURVEY OF PHYSICAL SCIENCE **FWS. 3 hours.**
A logically developed course in physical science rather than a "cut-down" version of the elementary courses in the various departments represented. Its aim is to give a definite conception of the physical world and some appreciation of the scientific method and its sociological significance. Sequence of topics will be as follows: Survey of Physical Science 11 includes force and motion, heat, electricity, sound, and light; Survey of Physical Science 12 includes the chemistry of matter and nuclear energy; Survey of Physical Science 13 includes astronomy, meteorology, and geology. Not recommended for students who are taking or have taken other college courses in physical science.

21. SOLAR SYSTEM ASTRONOMY **F. 3 hours.**
Introductory course intended for liberal arts students, prospective teachers or science majors. Subjects include: measurement of location and time, navigation, gravity, sun, planets, comets, meteors, satellites, the moon, astronomical instruments, and space travel. Two group observing nights and other activities will be scheduled. No laboratory.

22. STELLAR SYSTEM ASTRONOMY **W. 3 hours.**

Students may enter without Solar Astronomy with permission of the instructor. Subjects include: stars, variable stars, binaries, clusters, nebula, galaxies, space measurements, stellar and galactic evolution. Two group observing nights and other activities will be scheduled. No laboratory.

23. WEATHER AND CLIMATE **S. 3 hours.**

A non-mathematical introductory course intended primarily for liberal arts students, prospective teachers, or science majors. Subjects include atmospheric structure, heat, pressure, wind, moisture, instruments, storms, forecasting, and climate. One field trip, study of daily weather maps, local observing and some practice forecasting. No laboratory.

31. OLD WORLD ARCHAEOLOGY **F. 3 hours.**

A survey of the archaeology of Eurasia and Africa with emphasis on the emergence and spread of early man and on his scientific and technologic advances up to and including the Iron Age. Basic archaeologic concepts such as excavation procedures and modern dating methods are discussed. Class meets three periods per week.

32. NEW WORLD ARCHAEOLOGY **W. 3 hours.**

A survey of archaeology of North, Middle and South America emphasizing origin of inhabitants, distribution of sites, changes in tools, and scientific achievements. The first portion of the course deals primarily with Paleo-Indian Traditions and the latter portion with the Inca, Myan and Aztec Civilizations. Class meets three periods per week.

33. SOUTHWESTERN ARCHAEOLOGY **S. 3 hours.**

A survey of archaeology of the American Southwest. The course is designed to acquaint the student with the principal pre-Columbian peoples of this region, their origins, distribution, and technological achievements. Typical sites of each culture are disclosed. Class meets three periods per week.

Physics

10. INTRODUCTION TO PHYSICS **S. 4 hours.**

A course in physics consisting of lectures, demonstrations, discussions, for the non-science major. Four lectures per week.

10. INTRODUCTION TO PHYSICS LABORATORY **S. 1 hour.**

A three-hour laboratory with special emphasis on the understanding of underlying principles and methods of physics and their application to life in modern times.

41, 42, 43. GENERAL PHYSICS **FWS. 4 hours.**

This is a basic course in non-calculus physics with a thorough presentation stressing fundamental principles and relationships, practical applications and problem solving. The subject areas covered are mechanics, heat, sound, light, electricity, and modern physics. Cannot be taken without concurrent registration in the laboratory course. Four lectures per week. Prerequisite: Mathematics through college trigonometry.

41, 42, 43. GENERAL PHYSICS LABORATORY **FWS. 1 hour.**

This course permits the student to observe some of the principles discussed in the lecture class, take and evaluate quantitative data, and learn to prepare detailed laboratory reports. Designed to be taken with the lecture course but is not mandatory. One three-hour session per week.

51. ENGINEERING PHYSICS I **FS. 4 hours.**

A university level course in elementary physics for engineers, mathematicians, and physical science majors. This first of a three-quarter sequence is devoted entirely to the study of mechanics. Principles and mathematical models are stressed. Application to a wide variety of situations is used as a device to develop insight. The calculus and vector descriptions are used frequently. Four lecture-recitation periods per week. Concurrent registration in Math 51 is a minimum math corequisite.

51. ENGINEERING PHYSICS I LABORATORY **FS. 1 hour.**

Laboratory work in mechanics is accomplished in one three-hour period per week. This course is normally taken concurrently with Physics 51.

52. ENGINEERING PHYSICS II **FW. 4 hours.**

This second in the three-quarter sequence considers the fields of electricity and magnetism. Presentation techniques and objectives are the same as for Physics 51. Lecture-recitation, prerequisites follow logically from Physics 51.

52. ENGINEERING PHYSICS II LABORATORY **FW. 1 hour.**

Laboratory work in electricity and magnetism is undertaken in one three-hour period per week. This course is normally taken concurrently with Physics 52.

53. ENGINEERING PHYSICS III **WS. 4 hours.**

This course is concerned with wave motion, sound, heat, light, and a brief introduction to modern physics. Four lecture-recitation periods per week. Prerequisite: Satisfactory completion of Physics 52.

53. ENGINEERING PHYSICS III LABORATORY **WS. 1 hour.**

Laboratory work in wave motion, sound, heat and light are undertaken in one three-hour period per week. This course is normally taken concurrently with Physics 53.

64. MODERN PHYSICS **S. 4 hours.**

This course is an extension of the Physics 51, 52, 53 sequence. It is devoted to the study of special relativity, quantum effects and theory, nuclear physics and the solid state. Four lecture-discussion periods per week. Prerequisite, Physics 53.

64. MODERN PHYSICS LABORATORY **S. 1 hour.**

This laboratory course in modern physics meets for one three-hour period per week. Investigations into charge on the electron, Planck's constant, photoelectric effect and related phenomena are undertaken. Enrollment in this course is normally concurrent with Physics 64.

Division of Social Science

Courses offered by the Division of Social Science are designed to accomplish the following:

1. To prepare the student for more advanced work in upper division courses to be taken at a four-year college or university.
2. To help prepare students for a more active, intelligent role as citizens in their respective communities.
3. To meet the needs of students interested in participating in one of the technical or vocational programs offered by the college.

Instructional Staff: Mr. Jones, Chairman; Mr. Daily; Mrs. Fink; Mr. Harper; Mr. Hightower; Mr. Holloway; Mr. Don MacKendrick; Mr. Meeker; Mr. Morton; Mr. Nicholson; Mr. Perry; Mr. Roberts; Miss Shields; Mr. Tiemann.

SOCIAL SCIENCE

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Pol. Sci. 11	3	Pol. Sci. 12	3	Pol. Sci. 13	3
History 11 or 24	3	History 12 or 25	3	History 13 or 26	3
Foreign Language or Electives	5-6	Foreign Language or Electives	6	Foreign Language or Electives	6
Physical Education	1	Physical Education	1	Physical Education	1
	15-16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Literature	3	Literature	3	Literature	3
Science 11	3	Science 12	3	Science 13	3
Psychology or Biology	3	Psychology or Biology	3	Psychology or Biology	3
Economics 51	3	Economics 52	3	Economics 53	3
History 31	3	History 32	3	History 33	3
Sociology 61	3	Sociology 62	3	Sociology 63	3
	18		18		18

POLITICAL SCIENCE

FIRST YEAR

Associate in Arts

Fall Quarter	Hours
English 11	3
Political Science 11	3
History 31	3
Geography 11	3
Biology 21 or Psychology 21	3
Physical Education	1
	16

Winter Quarter	Hours
English 12	3
Political Science 12	3
History 32	3
Geography 12	3
Biology 12 or Psychology 22	3
Physical Education	1
	16

Spring Quarter	Hours
English 13	3
Political Science 13	3
History 33	3
Geography 13	3
Biology 13 or Psychology 23	3
Physical Education	1
	16

SECOND YEAR

Fall Quarter	Hours
Physical Science	5
Literature 61	3
Political Science 61	3
Political Science 54	3
Economics 51	3
	17

Winter Quarter	Hours
Physical Science	5
Literature 62	3
Political Science 62	3
History 20	3
Economics 52	3
	17

Spring Quarter	Hours
Physical Science	5
Literature 63	3
Political Science 63	3
Political Science 53	3
Economics 53	3
	17

PRE-LAW*

Associate in Arts

FIRST YEAR

Fall Quarter	Hours
English 11	3
Political Science 11	3
History 11	3
Mathematics 21 or 28	3-5
Biology 11	3
Physical Education	1
	16-18

Winter Quarter	Hours
English 12	3
Political Science 12	3
History 12	3
Mathematics 22 or 29	3-5
Biology 12	3
Physical Education	1
	16-18

Spring Quarter	Hours
English 13	3
Political Science 13	3
History 13	3
Mathematics 23 or 50	3-5
Biology 13	3
Physical Education	1
	16-18

SECOND YEAR

Fall Quarter	Hours
Physical Science	4-5
Foreign Language	5
Literature	3
Speech 11	3
Elective*	3
	18-19

Winter Quarter	Hours
Physical Science	4-5
Foreign Language	5
Literature	3
Speech 12	3
Elective	3
	18-19

Spring Quarter	Hours
Physical Science	4-5
Foreign Language	5
Literature	3
Elective	3
	15-16

*Recommended Electives: Accounting or Economics.

Social Science

ANTHROPOLOGY

11, 12, 13. INTRODUCTION TO ANTHROPOLOGY **FWS. 3 hours.**

A three-quarter introductory survey of the basic concepts of anthropology. Major areas studied are the biological nature of man, the evolution of man, race, and the development and history of culture.

ECONOMICS

51, 52, 53. PRINCIPLES OF ECONOMICS **FWS. 3 hours.**

An introductory course the dual purpose of which is to provide basic background for the student who plans to pursue advanced study in the field as well as to equip the ordinary citizen with some basic

tools of economic analysis needed for enlightened citizenship. The study includes an analysis of American capitalism, national income, government and fiscal policies, money, banking and monetary policies, the economics of the firm, international economic policies, competitive economic systems, and some current domestic and international economic problems. Not open to freshmen.

GEOGRAPHY

11. INTRODUCTION TO GEOGRAPHY **F. 3 hours.**

This course is a basic survey of essentials of college geography, including vocabulary, basic principles and techniques.

12. CULTURAL GEOGRAPHY **S. 3 hours.**

A survey of world regional geography, with attention focused on social and behavioral patterns resulting from environment.

13. ECONOMIC GEOGRAPHY **W. 3 hours.**

The relationship of geographical factors to economic life of people in various world regions constitutes the emphasis of this course.

HISTORY

11, 12, 13. WESTERN CIVILIZATIONS **FWS. 3 hours.**

This course seeks to give the student a background in political, economic, social, cultural, and military history of mankind from ancient to modern times, with particular emphasis being given to the development of western civilization. Class discussion, reports, lectures, and assigned readings are used to accomplish this purpose.

14, 15, 16. HISTORY OF EASTERN CIVILIZATION **FWS. 3 hours.**

A survey of the history of Asia. Fall quarter: The history and culture of Asia before Western penetration. Winter quarter: The penetration of the Orient by the Occident and its impact. Spring quarter: The forces of nationalism and modernity in a new and more committed Asia.

20. HISTORY OF COLORADO **F., W. or S. 3 hours.**

A survey of the history of Colorado from pre-historic times to the present. The course, includes consideration of the pre-historic peoples, the trapping and trading era, the mining period, and economic, political and social development of the state.

24, 25, 26. HISTORY OF LATIN AMERICA **FWS. 3 hours.**

A survey of the history of Latin America. In the first quarter pre-Columbian civilizations, the Colonial period, and the Revolutionary period will be studied. Second quarter: The emergence of the Latin-American republics. Third quarter: 20th Century problems and prospects. Considerable attention will be given to relations between Latin America and the United States.

31, 32, 33. UNITED STATES HISTORY **FWS. 3 hours.**

A survey course in the history of the United States. Fall quarter: Colonial period to Age of Jackson; Winter quarter: Expansionist Era to Progressive Era; Spring quarter: World War I to the present.

35. HISTORY OF BLACK AMERICA **WS. 3 hours.**

This is a history of the Black American from early beginnings in Africa to modern times. It concerns itself with the struggle, on the part of the Negro-American, for identity, equality, and acceptance through the changing attitudes of Anglo-Americans. It treats the varying responses of the Black Americans to their minority status.

POLITICAL SCIENCE

11, 12, 13. AMERICAN GOVERNMENT **FWS. 3 hours.**

A course which treats the framework and functions of the national government. Some attention is given to both state and local governments. An attempt is made to bring into relief the contemporary scene: philosophical, political, social, economic—within which the government operates and within which the student will be called upon to perform the duties of responsible citizenship.

53. PHILOSOPHY OF AMERICAN DEMOCRACY **W. or S. 3 hours.**

A course which deals with significant issues in the contemporary political culture. Ordinarily the instructor chooses relevant topics. Reading, lecture and discussion.

54. STATE AND LOCAL GOVERNMENTS **FW. 3 hours.**

A course designed for advanced political science students. The objective of this course is to gain an understanding of political theory of states, the meaning of federalism, the influence of Constitutionalism, the development of state constitutions, and a survey of the states' executive, legislative and judicial branches. Prerequisites: Political Science 11, 12, and 13.

61, 62, 63. COMPARATIVE GOVERNMENTS **FWS. 3 hours.**

An introduction to the comparative study of politics. The emphasis is on the principal political systems. Fall quarter: Political culture, modern ideologies, Great Britain. Winter quarter: France, Germany, Soviet Union. Spring quarter: The developing nations. Models are Tangania, Mexico or Brazil, Yugoslavia, Iran or Turkey.

PSYCHOLOGY

21, 22, 23. GENERAL PSYCHOLOGY **FWS. 3 hours.**

A course designed to give the student a fundamental understanding of the causes and methods of behavior, and to give him practical suggestions for the control and improvements of his own life. Factors in development, motivation, emotions, the special senses, attention and perception, learning, and thinking. The role of psychology in the solving of personal and social problems including a study of individual differences, intelligence, dynamic factors in personality, and social and vocational adjustment.

33. HUMAN GROWTH AND DEVELOPMENT **F. 3 hours.**

This course is designed to assist the student in understanding the psychological and physiological development of the individual from conception through the period of old age.

74. EDUCATIONAL PSYCHOLOGY **S. 5 hours.**

The psychological principles underlying the social, emotional and intellectual development of the child as these relate to educational theory and practice. It is recommended that those sudents who are primarily interested in education take this course as a continuation of Psychology 21 and 22, which are prerequisites.

SOCIAL SCIENCE

11, 12, 13. INTRODUCTION TO SOCIAL SCIENCE **FWS. 3 hours.**

An introduction to the fields of anthropology and sociology constitutes the first quarter's work; a survey of government is included the second quarter; the third quarter introduces the student to the field of economics. Courses not required in sequence.

SOCIOLOGY

44. MARRIAGE AND THE FAMILY **FWS. 3 hours.**

The development of marriage and the family in various selected cultures from primitive times to date; an examination of the important aspects of courtship and marriage; contemporary marital and domestic problems; changing functions of the family, efforts at stabilization, and the problem of adjustment to a changing society.

61, 62. GENERAL SOCIOLOGY **FW. 3 hours.**

A survey of concepts in the study of sociology, acquainting students with terminology, basic principles involved, and important theoretical concepts. Includes a study of basic group relationships, ranging from family to world, with approaches from the standpoint of race, nationality, population factors, social mobility, ecology, and mass behavior patterns. The two quarters should be taken consecutively and 61 is prerequisite to 62.

63. SOCIAL PROBLEMS **S. 3 hours.**

Introductory approach to some of the major social problems of the modern world, including crime, poverty, divorce, disease, mass conformity, political apathy, sub-standard housing, and mental health. Students prepare papers on special studies in addition to regular textbook assignments, discussions, and lectures. Prerequisite: Sociology 61 and 62.

Vocational-Technical Education

Area Vocational School

Area Vocational School

Recognizing the national need for better-trained manpower, the Mesa College Area Vocational School provides a large variety of learning opportunities for students who wish to become skilled technicians. Thousands of jobs await those who have the skills and abilities demanded by business and industry.

Because the Area Vocational School's clientele represents many ethnic origins, disadvantaged and non-disadvantaged groups, and persons with a wide range of educational backgrounds, the programs and course offerings are structured to provide bread areas of learning opportunities.

The curriculum of each of the programs described on the following pages is designed to provide job-entry skills even though the student may not complete the program. The further the student progresses in each program, the greater skill he acquires; upon completion of the curriculum the student reaches the technician level. While the objective of each of the programs is to produce a skilled technician, the Area Vocational School also places emphasis upon general enrichment courses.

The following curricula lead to the Associate in Applied Science Degree, the Mesa College Diploma, or a Certificate. High school dropouts, high school graduates, and adults may enroll for any of these programs. If a student seeks the Associate in Applied Science Degree he must meet the general requirements of the program and follow the suggested curriculum for the skill in which he enrolls. (The student must be a high school graduate or must complete the GED test.) If a student does not seek the degree, he may enroll for whatever individual courses he desires and for whatever number of credit hours he wishes.

VOCATIONAL-TECHNICAL EDUCATION

Audio Visual and Graphic Communications Technology

Associate in Applied Science

Mr. Ackerman, Mr. Hendrickson

A two-year technical program designed to prepare the student to enter business, industry, and educational systems upon completion of one of the two options. The student will develop basic skills in the audio-visual option from simple familiarization with and repair of hardware to the various production techniques encountered in the educational media field.

In the Graphic Communications option the student will develop basic skills in visual information design, visual information reproduction, and visual information recording, storage, and retrieval.

AUDIO VISUAL AND GRAPHIC COMMUNICATIONS TECHNOLOGY CURRICULUM

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
VTAV 14	3	VTAV 13	3	VTAV 13	3
Business 43	4	VTPS 11	3	VTSO 14	3
VTAV 11	3	VTSO 13	3	VTAV 51	3
Physical Education	1	VTSO 52	3	VTAV 54	3
VTAV 15	3	Physical Education	1	Physical Education	1
	17		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTLT 12	3	VTPS 58	5	VTAV 58	5
VTPS 12	3	VTAV 52	3	VTAV 53	5
VTAV 15	3	VTAV 55	3	VTAV 56	2
Elective*	3	VTAV 57	4	Elective*	3
Education 51	3	Elective*	3		15
	15		18		

GRAPHIC COMMUNICATIONS CURRICULUM

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTGC 70	3	VTBU 17	3	VTGC 76	3
VTGC 71	3	VTGC 72	3	VTGC 77	3
Art 31	2	VTGC 75	3	Elective*	9
VTGC 73	3	VTGC 74	3		15
English 31	3	Elective	3		
	14		15		

* Suggested Electives: Salesmanship, Small Business Management, Accounting 13, Business Communication, Radio and TV Speech, Art 14 and 15, Introduction to Business.

Auto Body and Fender

Associate in Applied Science

Mr. Sidener

At the end of one year a student will be awarded a certificate of capability. Upon completion of the requirement set forth in the curriculum, a student will receive the Associate in Applied Science Degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. Training gives the necessary laboratory skills, knowledge of theory, principles and related subjects essential to enter and progress competitively in the occupation.

AUTO BODY AND FENDER CURRICULUM

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours
English (Auto)	3
Applied Math	3
Gen. Auto Body Repair	5
Shop Practice	1
Physical Education	1
Oxyacetylene Welding	3
	16

Winter Quarter	Hours
English (Auto)	3
Repair and Refinishing	5
General Refinishing	4
Physical Education	1
Auto Reconditioning	3
	16

Spring Quarter	Hours
English (Auto)	3
Repair and Refinishing II	5
Arc Welding	2
Physical Education	1
Auto Reconditioning	3
	14

SECOND YEAR

Fall Quarter	Hours
Applied Economics	3
Repair and Refinishing III	5
Frame Repair	4
Panel and Spot Painting	3
	15

Winter Quarter	Hours
Applied Sociology	3
Repair and Refinishing IV	5
Panel Fitting	2
Human Relations	3
Frame Repair	2
	15

Spring Quarter	Hours
Applied Psychology	3
Repair and Refinishing V	5
Shop Management	3
Estimating	2
Elective	3
	16

Auto Mechanics and Technology

Associate in Applied Science

Mr. Bement, Mr. Charlesworth, Mr. Heck, Mr. Tyler

This program is designed to train persons who wish to enter into the automotive service trades. The automotive service trades include general mechanics, specialists of various types, shop foremen, service managers, service salesmen, instructors, factory service representatives, insurance adjustors and other positions. It will provide the necessary foundation upon which students may enter and advance themselves in the automotive trades. The curriculum is designed to provide a student job entry skills upon completion of one year, at which time a certificate may be awarded.

AUTO MECHANICS AND TECHNOLOGY CURRICULUM

(See VT course descriptions beginning on page 103.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours
VTAM 11	3
VTAM 12	2
VTAM 14	7
English 11 (Auto)	3
Physical Education	1
	16

Winter Quarter	Hours
VTAM 13	3
VTAM 15	3
VTAM 16	4
VTAM 17	3
English 12 (Auto)	3
Physical Education	1
	17

Spring Quarter	Hours
VTAM 19	6
VTAM 54	5
English 13 (Auto)	3
Physical Education	1
	15

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTAM 55	4	VTAM 18	3	VTAM 53	2
VTAM 56	5	VTAM 20	1	VTAM 58	4
VTSO 52	3	VTAM 52	2	VTAM 59	4
Engineering 10	3	VTAM 57	4	VTAM 60	1
	15	VTSO 24	3	VTSO 11	3
		Elective*	3	Elective*	3
			15		17

* Suggested Electives: Word Study; Fiction; Speech; Basic Mathmatics; College Algebra; Advanced Drawing; World and Colorado History; Accounting 31; Business Math; Applied Psychology; Personal Hygiene.

Child Care Center Director

Associate in Applied Science

Mrs. Beemer

A Children's Day-Care Center curriculum is offered to meet the needs of those presently employed in nursery schools or day-care centers and those contemplating working in the field.

Students majoring in this curriculum take courses designed to increase their understanding of the education and care of children. It is required that the student have laboratory experience in Mesa College's Child Development Center and other community child-care facilities.

Students successfully completing the course may find employment in private and cooperative day-care centers, nursery schools, children's homes, institutions for exceptional children, etc. Placement is dependent on individual maturity and professional growth.

CHILD CARE CENTER CURRICULUM

(See VT course descriptions beginning on page 103.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Home Economics 12	3	VTFA 11 or Lit. 21	3	VTCC 11	3
Home Economics 36	3	VTFU 11	3	VTFA 12	3
Physical Education	1	Physical Education	1	Physical Education	1
Speech 11 or 16	3	Elective*	3	HPE 20	2
	16		16		15

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Sociology 44	3	VTSO 51	3	Home Economics 53	3
VTBU 39	3	Home Economics 42	3	VTCC 52	3-6
Home Economics 41	3	VTCC 51	2	Speech 11	3
Literature	3	History or Soc. Sci.	3	VTCC 55	3
Elective*	3	VTCC 52	3	VTFA 13	3
	15		14		15-18

* Suggested Electives: Applied Psychology; Typing; Personal Development; Business Mathematics.

Data Processing

Associate in Applied Science

Mr. Dickson, Mr. Squirrell, Mr. Youngquist

The electronic data processing field offers a wide diversification of job possibilities for trained personnel. Key Punch operators assist in the preparation of punched cards in which the data is originally recorded. Machine operators supervise the operation of the data processing machines.

Computer personnel plan the patterns to be followed by the computer to produce many types of information.

A student at Mesa College will, during the two years of attendance, spend much time working directly on and with the data processing machines including the electronic computer. Problems similar to those of actual business will be solved by the student using IBM machines.

Data Processing technicians are employed by business and industry in the following positions:

Machine Operators
Machine Supervisors
Installation Supervisors
Programmers
Research
Computer Specialists

DATA PROCESSING CURRICULUM

(See VT course descriptions beginning on page 110.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Mathematics 21	5	Mathematics 22	5	Mathematics 23	5
Accounting 31	3	Accounting 32	3	Accounting 33	3
VTDP 11	3	Physical Education	1	Physical Education	1
VTDP 12	2	VTDP 51	5	VTDP 55	5
	16		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physical Science 11	3	Accounting 62	3	Accounting 63	3
Economics 51	3	Economics 52	3	Economics 53	3
Psychology 21	3	Psychology 22	3	Psychology or Social Science	3
VTDP 52	5	VTDP 53	5	VTDP 54	5
Accounting 64	3	Physical Education	1	Elective	3
	17		15		17

Electronics Technology

Associate in Applied Science

Mr. Allmaras, Mr. Timpte

The Electronics Technology curriculum has been arranged to provide optimum specialized technical instruction. The objective and the emphasis throughout is on an understanding of the engineering principles basic to the field of electronics. The curriculum is organized in a manner unlike that found in the professional engineering school or in the traditional trade school.

The curriculum is organized to provide a basic preparation for entry employment in a variety of occupations in the field of electronics. The courses are arranged in workable sequence suitable to the instructional needs of the students with an appropriate balance between technology courses, general education courses, and laboratory applications. It is not a pre-engineering curriculum suitable for transfer to four-year institutions.

A graduate of this program will have a good foundation in the principles of electronics and considerable facility with the "hardware" encountered in the electronics industry.

A background of algebra, geometry, and trigonometry is desired for this program.

ELECTRONICS TECHNOLOGY CURRICULUM

(See VT course descriptions on pages 110, 124.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 15	3	Physical Education	1
Physical Education	1	Physical Education	1	VTEL 13	4
VTEL 11	4	VTEL 12	4	VTEL 19	7
VTEL 14	2	VTEL 18	7	VTEL 58	5
VTEL 17	7		15		17
	17				

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTEL 51	5	VTEL 57	4	VTEL 64	1
VTEL 53	4	VTEL 52	4	VTEL 61	4
VTEL 56	4	VTEL 15	1	VTEL 59	4
VTSO 52	3	VTSO 14	3	VTEL 65	4
	16	English 13 or Literature	3	VTSO 11	3
			15		16

* Other approved electives may be substituted.

Engineering Technician

Mr. Horn, Mr. Ramsey

Engineering technology is that part of the technological field which requires the application of scientific and engineering knowledge with methods of technical skills in support of engineering activities. This program is designed to enable technicians to take the ideas of design, research, and advance planning of the engineer (who nowadays has little time for application) and translate them into practical application: to work with the engineer to take a design from idea to planning and then to production. The demand for the services of engineering technicians is great due to the extreme shortage of engineering technicians. Career opportunities are excellent.

Students interested in Engineering Technology should have good communication techniques, math and physical science aptitude, at least one and one-half years of high school algebra and geometry, and one year of chemistry or physics. Students should be curious about how things work and should have some mechanical aptitude.

CIVIL ENGINEERING TECHNICIAN CURRICULUM

(See VT course descripitons beginning on page 113.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Engineering 12	3	Engineering 13	3	Engineering 11	3
English 11	3	English 12	3	English 15	3
Mathematics 10	3	Mathematics 19*	5	Mathematics 20 and 21	5
Physical Education	1	Physical Education	1	Physical Education	1
VTET 11	3	VTET 12	3	Economics or Approved Elective	3
Economics or Approved Elective	3		15		15
	16				

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Engineering 71	3	Engineering 72	3	Engineering 73	3
Physics 41	5	Physics 42	5	Physics 43	5
VTET 62	3	VTET 63	3	VTET 65	3
VTET 64	3	VTET 54	3	VTET 67	3
Economics or Approved Elective	3	VTET 68	3	VTET 65	3
	17		17		16

* Mathematics 18 would be approved for elective to Mathematics 19.

DRAFTING TECHNICIAN CURRICULUM

(See VT course descriptions beginning on page 118.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Mathematics 21	5	Mathematics 22	5	Mathematics 20	5
Engineering 12	3	VTET 54	3	Engineering 13	3
Engineering 74	3	Engineering 11	3	VTET 60	3
Physical Education	1	VTET 59	3	Physical Education	1
VTET 61	2	Physical Education	1		
	17		18		15

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTET 52	3	VTET 55	3	VTET 65	3
VTET 53	3	VTET 58	3	VTET 57	3
VTET 11	2	VTET 15	1	VTET 56	3
Physics 41	5	VTET 62	3	VTET 63	3
Elective in Soc. Sci.	3	Elective in Soc. Sci.	5	Elective	3
	16		15	Elective in Soc. Sci.	3
					18

Options

Electrical Applied—In place of VTET 51 and VTET 53 during Fall Quarter, take VTEL 17.
In place of VTET 54 and VTET 56 during Winter Quarter, take VTEL 18.
VTET 17 Concepts of Direct Current Circuits.
VTEL 18—Alternating Current Circuit Analysis.

Civil Applied In place of VTET 55 (Mechanical Systems), take VTET 12 (Fluid Mechanics and Hydrology).
In place of VTET 58 (Electrical Systems), take VTET 66 (Municipal Engineering).

Geologic Technician

Associate in Applied Science

Mr. Roadifer, Mr. Scott, Mr. Young

The purpose of this program is to train support personnel to work with professional geologists, engineers, and researchers who work for oil companies, various agencies and bureaus of the federal government and certain areas of private industry. Individuals so trained would be able to work with technical competence in the operation of laboratory, research, and exploratory equipment, should be able to compile technical data from such equipment, identify and classify geologic specimens, perform limited drafting services, and be conversant with professionals in geology.

GEOLOGIC TECHNICIAN CURRICULUM

(See VT course descriptions beginning on page 108.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Geology 31	5	Geology 32	5	Geology 33	5
*Mathematics 21	5	*Mathematics 22	3	*Mathematics 23	3
VTSO 11	3	VTDP 11	3	Physics 10	5
Physical Education	1	Physical Education	1	Physical Education	1
	15		15		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
**Chemistry 21	5	**Chemistry 22	5	**Chemistry 23	5
Engineering 71	3	VTPS 59	5	VTME 52	5
VTPS 51	2	VTPS 53	3	VTPS 55	4
VTPS 60	2	VTPS 54	3	VTPS 56	3
Soc. Sci. or Lit.	3	Soc. Sci. or Literature	3		17
	15		19		

* Mathematics 28, 29, 30 may be substituted.
** Chemistry 31, 32, 33, or Biology 21, 31 and Speech may be substituted.

Job Entry Occupations In Business

Certificate

A Vocational Program Designed to Help Students Acquire Skills for Job Competency

Mrs. Uhrlaub

This program is designed for high school drop-outs, high school graduates, and adults who desire to gain skills of Typing, Shorthand, Bookkeeping, and related courses, for entry into occupations in business such as Bookkeeper, Receptionist, File Clerk, Typist, and Stenographer. For students who have a limited academic background, the program provides an opportunity to review and improve before attempting a college-level curriculum.

The program is designed for 11 months' training. No college credit and no grades are given. The student progresses at his own rate of speed. Upon leaving the program, he will be given a certificate stating his accomplishments. Classes meet six hours per day, five days per week.

JOB ENTRY CURRICULUM

No.	Course	Total Class Hours	No.	Course	Total Class Hours
VTJE 4	Basic Business English	220	VTJE 8	Speech	55
VTJE 5	Typewriting	220	VTJE 9	Personal Development (A Participation course—Sport, Band, Choir, Debate, etc.)	55
VTJE 2	Bookkeeping or				
VTJE 1	Shorthand	220			
VTJE 3	Business Mathematics	110	VTJE 10	Office Machines	65
VTJE 6	Word Study	100	VTJE 7	Laboratories	220

Library Technician

Associate in Applied Science

Mrs. Basinger, Miss Goff, Miss Messenger, Mr. Wenger

This program is designed to train library technicians for employment in libraries of all types and sizes. It is a two-year program leading to an Associate in Applied Science degree and is a combination of technical and general course work and practical application through actual library work experience.

LIBRARY TECHNICIAN CURRICULUM

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTLT 11	2	VTLT 13	3	VTLT 14	3
English 11	3	English 12	3	English or Lit.	3
VTLT 12	3	Fine Arts	2	Social Science	3
Science	3	Social Science	3	Business 43	4
VTAV 15	3	Science	3	Physical Education	1
Physical Education	1	Physical Education	1		14
	15		15		

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
VTLT 51	4	VTLT 53	3	VTLT 52	3
Social Science	3	VTLT 54	2	VTLT 55	3
Speech 11	3	Electives*	6	VTLT 57	2
Literature	3	VTLT 56	2	Literature 21	3
Secretarial Science 14	3	Psychology or Literature	3	Electives*	6
	16		16		17

* Suggested Electives: Personal Development; Human Relations; Applied Sociology; Creative Play Activities; Secretarial Accounting.

Medical Office Assistant

Associate in Applied Science Degree

Mrs. Morrow

In the field of medicine, a fascinating one for many young women, a new and interesting career has been receiving increasing attention in recent years—the Medical Office Assistant. Mesa College will prepare young women of ability and character for this course in a two-year curriculum.

The Medical Office Assistant must be versatile, fitted by training and personality to work with professional medical people in various ways. In addition to general education, she needs basic knowledge and skills such as typing, medical shorthand, accounting and office procedures. Courses in anatomy, biology, and medical terminology are working tools and provide a basis for acquiring the vocabulary of medicine. Courses in laboratory techniques provide a background for laboratory assisting.

Medical Office Assistants are employed by the following:

Private Medical Offices	Hospitals
Public Health Clinics	Medical Research Agencies
Industrial or Private Clinics	Drug Companies

MEDICAL OFFICE ASSISTANT CURRICULUM*

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Secretarial Science 14	3	Secretarial Science 15	3	Business 11	3
Business 42	2	Business 43	4	Psychology 23 or 33	3
Psychology 21	3	Psychology 22	3	Science 13**	3
Business 12	3	Elective***	3	Physical Education 13	1
Physical Education 11	1	Physical Education 12	1	Secretarial Science 17	3
	15		17		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Speech 11	3	VTSO 51	3	Physical Education 41	3
Biology 14	5	Biology 15	3	Biology 53	5
VTHE 54	3	VTHE 55	3	VTBU 60	3
VTHE 47	3	Accounting 13	3	VTHE 59	3
		Elective***	3	Elective***	3
	14		15		17

* This is the same program as that listed under Secretary (Medical) except that the sequence of courses may be different.

** Options: Chemistry 41; Chemistry 21; Sociology 61; Sociology 44.

*** Suggested Electives: Personal Development: Income Tax: Business Law: Nutrition.

Police and Fire Science Technology

Associate in Applied Science

This two-year program is designed to train students for service with law-enforcement and fire-protection agencies. Upon completion of the core curriculum during the first year and either the Police or Fire Science option during the second year, the student will receive the Associate in Applied Science Degree.

The Police and Fire Science Technology program has been initiated in the night school in order to provide presently employed police officers and firemen the opportunity to upgrade their education and skills.

POLICE AND FIRE SCIENCE TECHNOLOGY

(See VT course descriptions beginning on pages 115, 121.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Speech 11	3	English 12	3	English 15	3
Psychology 21	3	Psychology 22	3	Sociology 44	3
Social Science 31	3	Science 12	3	Science 13	3
Political Science 41	3	Social Science 32	3	Social Science 33	3
State and Local Govt.	3	Mathematics 10	3	Admin. of Justice and Court Procedures	3
	15		15		15

SECOND YEAR

Police Science

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Introduction to Law Enforcement	3	Criminal Law	5	First Aid	3
Police Patrol and Procedures	3	Evidence	3	Criminal Procedure and Evidence	3
Juvenile Delinquency and Juvenile Procedures	3	Criminal Investigation and Interrogation	3	Self Defense	2
Narcotics and Drugs	3	Traffic Control and Accident Investigation	3	Constitutional Law	3
Business Mathematics	4	Human Relations	3	Police Auxiliary Services	3
	16		17	Elective	3
					17

Fire Science

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Fundamentals of Fire Prevention	3	Hazardous Materials II	3	Fire Department Administration	3
Fire Hydraulics	3	Human Relations	3	Rescue and First Aid	5
Fire Apparatus and Equipment	3	Plant Layout for Fire Safety	3	Insurance	3
General Chemistry	5	Related Codes and Ordinances	3	Fire Investigation	3
Hazardous Material I	3	Fire Fighting Tactics and Strategy	3	Fire Protection Equipment	3
	17		15		17

Practical Nursing

Certificate

Mrs. Schumann

A twelve-month course designed to prepare qualified men and women for service in hospitals and other health agencies as licensed practical nurses. Upon completion of this course, the graduate is qualified to take the licensing examination.

The program is approved by the Colorado Board of Licensed Practical Nurse Examiners and by the Colorado State Board for Community Colleges and Occupational Education.

High School graduation or equivalent (G.E.D.) and satisfactory scores on aptitude tests and/or ACT tests are required for admission.

Applicants follow the same procedures as all other applicants to Mesa College. Supplementary forms and detailed instructions for making application specifically for Practical Nursing may be secured from the Division of Health Programs.

PRACTICAL NURSING CURRICULUM

Fall Quarter	Hours
VTBI 12	3
VTBI 23	1
VTPN 11	8*
VTPN 12	1
VTPN 16	3
VTPN 27	2
Physical Education	1
	19

Winter Quarter	Hours
VTPN 22	2
VTPN 21	4
VTPN 23	4
VTPN 24	1
VTPN 25	4**
	15

Spring Quarter	Hours
VTPN 32	2
VTPN 33	4
VTPN 34	2
VTPN 35	6**
VTPN 36	1
	15

Summer Quarter	Hours
VTPN 43	2
VTPN 45	13**
VTPN 46	1
VTPN 47	1
	17

* Two class laboratory hours, one class hour.

** Three clinical laboratory hours, 1 class hour.

Secretary—Legal, Medical, Scientific

Associate in Applied Science

The purpose of this program is to train students with marketable skills to perform services in legal offices or scientific endeavors of various kinds. In addition to secretarial training, students are given training in legal or scientific terminology and legal or scientific transcription.

SECRETARY—LEGAL, MEDICAL, SCIENTIFIC CURRICULUM

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours
English 11	3
Secretarial Science 14	3
Secretarial Science 23*	4
Business 42	2
Psychology 21	3
	15

Winter Quarter	Hours
English 12	3
Secretarial Science 15	3
Secretarial Science 31	4
Elective	3
Psychology 22	3
	16

Spring Quarter	Hours
English 13 or 15	3
Business 11	3
Business 12	3
Business 41	4
Psychology 22 or 33	3
	16

* Transcription Machines may be substituted for Shorthand in the Medical Office Assistant option.

SECOND YEAR OPTIONS

Medical Office Assistant

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Speech 11	3	VTSO 51	3	Physical Education 41	3
Biology 14	5	Biology 15	3	Biology 53	5
VTHE 54	3	VTHE 55	3	VTBU 60	3
VTHE 47	3	Accounting 13	3	Elective	3
Physical Education	1	Physical Education	1	VTHE 59	3
	15	Elective	3	Physical Education	1
			16		18

Legal

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 51	3	Business 52	3	Business 53	3
VTSO 51	3	Accounting 13	3	VTBU 61	3
Mathematics 21	3	Mathematics 22	3	VTSO 52	3
VTSO 15	3	VTSO 56	3	Secretarial Practice 33	3
Speech 11	3	VTSO 57	3	VTSO 59	3
Physical Education	1	Physical Education	1	Physical Education	1
	16		16		16

Scientific

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Mathematics 21	3	Mathematics 22	3	Mathematics 23	3
Physical Science 11	3	Physical Science 12	3	VTBU 62	3
Engineering 11	3	VTPS 57	3	Physical Science 13	3
VTSO 15	3	Accounting 13	3	VTSO 52	3
Physical Education	1	VTDP 11	3	Electives	3
Electives	3	Physical Education	1	Physical Education	1
	16		16		16

Travel And Recreation Management

Associate in Applied Science Degree

Mr. Cassidy

This curriculum has been developed in recognition of the importance of the rapidly growing tourist industry to Western Colorado and to the Rocky Mountain Region. It is designed to train students to serve tourist-related trades and industries in the region.

Employment possibilities for graduates of this program would range from receptionist and office work with limited supervisory responsibilities to positions entailing management responsibilities in a wide range of service agencies, such as transportation companies, travel agents and bureaus, air hostesses, office managers, assistant managers, assistant recreational directors, tour and resort guides, ticket agents, etc.

TRAVEL AND RECREATION MANAGEMENT CURRICULUM

(See VT course descriptions beginning on page 103.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 12	3	English 12	3	English 13 or 15	3
English 11	3	Business 41	3	Mathematics or Science	3
Business 26	3	Mathematics or Science	3	VTPS 13	3
VTSO 12	3	VTSO 15	3	Physical Education	1
Physical Education	1	VTBU 17	3	VTTR 11	3
VTSO 52	3	Physical Education	1	VTSO 11	3
	16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 51	3	VTBU 57	3	VTTR 53	15
VTTR 51	3	VTTR 52	3	Work Experience**	
Speech 11	3	Elective*	6		
VTBU 58	3	Accounting 13 or 31	3		
Elective*	3				
	15		15		15

* Electives: Income Tax; Personal Finance; Geography; Language; Typing; Office Machines; Insurance.

** Work experience to be arranged during the intervening summer or at the end of the program on a full-time basis (500 hours), or on a part-time basis over a period of two or more quarters.

Welding

Certificate

Mr. Branton, Mr. Nutting

This program is designed for twelve months in length. If a student leaves before completion, he will be awarded a certificate of capability. If he completes the program, he will be awarded a certificate of completion. The course is designed to give the student the required knowledge of metals, layout work and welding processes. A student will gain manipulative skills and related information essential to enter and progress in the occupation. Instruction and shop practice are given in oxyacetylene and electric arc welding of ferrous and non-ferrous metals in all positions.

WELDING CURRICULUM

(See VTWL course descriptions beginning on page 126.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English	3	Human Relations	3	Arc Welding III	7
Oxyacetylene Welding I	3	Oxyacetylene Welding II	4	Fabrication Layout	3
Applied Math I	3	Blueprint Reading	3	Arc Welding Theory	2
Oxyacetylene Theory	3	Applied Math II	3	Elective	3
Arc Welding I	3	Arc Welding II	4		
	15		17		15

SUMMER

Summer Quarter	Hours
Arc Welding IV	7
Metallurgy	5
Shop Management	2
Structural Welding Theory	2
	16

Vocational-Technical Course Descriptions

(Although a number of colleges and universities recognize certain vocational-technical courses for transfer credit, students are advised that these courses are not intended for transfer and are not applicable to the Associate in Arts and Associate in Science degrees.)

Auto Body and Fender

VTAB 10. APPLIED MATHEMATICS **F. 3 hours.**
A brief review of the arithmetic, shop mathematics, and algebra that students will need to handle the mathematical aspects of auto mechanics.

VTAB 11. GENERAL AUTO BODY REPAIR **F. 5 hours.**
An introduction to theory and practices of auto body repair. Basic principles involved are studied and practiced.

VTAB 12. SHOP PRACTICE **F. 1 hour.**
General information pertaining to technical aspects. Includes safety practices, tools, and materials. Orientation of student to school rules, regulations and curriculum. Safety practices while training. Type of work encountered in the field.

VTAB 13. OXYACETYLENE WELDING **F. 3 hours.**
The course includes the theory and practice of oxyacetylene welding of mild steel, the identification of base and filler metals and melting temperatures of various metals. Special emphasis is placed on root penetration and fusion of welding materials. If time permits, some brazing and bronze welding of mild steel and cast iron, as used in auto-body repair, will be included. Class: 2 hours. Shop: 8 hours.

VTAB 16. AUTO RECONDITIONING **WS. 3 hours.**
A related course in auto body repair designed to teach a skill in auto reconditioning. Involved will be glass installation, painting of spot repair, panel repair, cleaning and repair of upholstery, motor cleaning. Also buffing and polishing. A course designed to give a person a saleable skill in a much shorter time.

VTAB 21. GENERAL REFINISHING **W. 4 hours.**
A comprehensive study of auto refinishing which will include metal conditioners, primers, sealers, surfacers, reducers, thinners, and the different types of paints and the techniques used to apply them.

VTAB 24. REPAIR AND REFINISHING I **W. 5 hours.**
Bench work on auto body parts. Manipulative practice of skills needed to advance in general auto body work with emphasis on auto finishing. Shop: 15 hours.

VTAB 32. PANEL AND SPOT PAINTING **F. 3 hours.**
Paint composition, refinishing products and their correct usage, color matching and procedures to be used in making a lacquer or acrylic spot repair. Class: 3 hours. Shop: 1 hour.

VTAB 33. ARC WELDING **S. 2 hours.**
A beginning course in welding mild steel in down-hand position with electric arc welding equipment. Proper care, use of equipment, and safety precautions and practices are heavily stressed. Shop: 4 hours.

VTAB 34. REPAIR AND REFINISHING II **S. 5 hours.**
Continuation of Repair and Refinishing I. Emphasizes all types of metal work. Includes working with aluminum, galvanized iron, and other metals utilized in auto body work. Shop: 15 hours.

VTAB 51. FRAME REPAIR **W. 2 hours.**
Inspection, measurement and repair methods used to repair unitized and conventional frames. Shop: 10 hours.

VTAB 54. REPAIR AND REFINISHING III **F. 5 hours.**
Continuation of shop learning practices. Severe collision repair procedures are studied. Shop: 15 hours.

VTAB 62. PANEL FITTING **W. 2 hours.**
Methods used in all directional adjustment and fit of hinges on body panels (hoods, decks, doors). Class: 3 hours. Shop: 1 hour.

VTAB 64. REPAIR AND REFINISHING IV. **W. 5 hours.**
Continuation of shop learning procedures. Emphasis on metal work and spot painting. Shop: 18 hours.

VTAB 71. SHOP MANAGEMENT **S. 3 hours.**
Study of shop operation, expenditures, floor-plan design and equipment for the modern-day shop. Expectations and management of employees.

VTAB 72. ESTIMATING **S. 2 hours.**
Study of parts catalogs, flat rate, R&R procedures, insurance adjustments, and the writing of collision repair bids.

VTAB 74. REPAIR AND REFINISHING V **S. 5 hours.**
Concentration of shop and learning experiences in area in which student wishes to specialize. Shop: 15 hours.

Auto Mechanics

VTAM 11. APPLIED MATH FOR AUTO MECHANICS **F. 3 hours.**
A brief review of the arithmetic, shop math, and algebra that students will need to handle the mathematical aspects of auto mechanics.

VTAM 12. SHOP PRACTICE **F. 2 hours.**
This is an introductory course designed to teach and develop basic shop practices and skills. It will cover such things as the use of hand, power and special tools. The care of tools and equipment, automotive fastenings, locking devices, tubing, connectors, fittings, basic welding and safety practices are included.

VTAM 13. AUTOMOTIVE BRAKE SYSTEMS **W. 3 hours.**
This is a complete course in the servicing and repair of the hydraulic brake system. Includes the basic principles of hydraulics, servicing the linings, drums, cylinders, lines and power booster units, adjusting and bleeding the system.

VTAM 14. INTERNAL COMBUSTION ENGINES **F. 7 hours.**
A basic study of the internal combustion engines dealing with types, design, construction, principles of operation and application of engine components. The physical principles of cooling, lubrication, ignition and fueling as well as minor engine tune-ups are studied.

VTAM 15. APPLIED PHYSICS FOR AUTO MECHANICS **W. 3 hours.**

A survey course of the principles of physics used in auto mechanics. No laboratory.

VTAM 16. BASIC ELECTRICITY **W. 4 hours.**

A study of basic electricity as it applies to the automobile is the objective of this course. Topics taken up include: Magnetism, magnetic lines of force, magnetic induction, electromagnetism, the electron theory, electrical terms, conductors, insulators and batteries.

VTAM 17. IGNITION SYSTEMS **W. 3 hours.**

All units comprising the ignition system, consisting of the primary and secondary circuits, are studied here. The distributor and related parts, coil, ignition switch, resistors, spark plugs, cables and wiring, as well as ignition timing are fully covered. All adjustments and service procedures are included.

VTAM 18. DIFFERENTIAL **W. 3 hours.**

Both conventional and limited slip differentials are covered. Methods of repair and adjustment of the bearings, ring gear and pinion, axles and other parts are included.

VTAM 19. FUEL SYSTEMS **S. 6 hours.**

The chemical properties of fuels, fuel and air ratios, metering, atomizing, vaporizing and mixing are studied. The complete fuel system—is thoroughly treated. Single, dual and four barrel carburetors, single and double action fuel pumps of all popular makes are included.

VTAM 20. CLUTCH AND DRIVE LINE **W. 1 hour.**

A comprehensive study of the clutch pressure plate assembly, clutch disk, clutch pedal and linkage, clutch release bearing, pilot bearing, U-joints and drive shafts are treated in this section.

VTAM 52. SUSPENSION **W. 2 hours.**

The identification of chassis parts, measurements, the frame, springs, shackles, shock absorbers, front axles, suspension and steering geometry, steering gears, tires, wheels, and wheel balancing are the items covered in this section.

VTAM 53. ALIGNMENT **S. 2 hours.**

This course is designed for the study and practice of alignment techniques, including caster-camber, kingpin inclination, torsion bar height, toe-in, and steering mechanisms.

VTAM 54. ELECTRICAL SYSTEMS AND COMPONENTS **S. 5 hours.**

Starters, generators, alternators, voltage regulators, solenoids, switches, relays, lights, wiring and cables are thoroughly covered both in theory and practical application. A complete lab on the servicing and adjustment of these units, using the latest equipment, is part of this course.

VTAM 55. STANDARD TRANSMISSIONS AND OVERDRIVES **F. 4 hours.**

A course to acquaint the student with gears, gear ratios, the synchromesh transmission and overdrives. A complete lab on repair and maintenance is included.

VTAM 56. AUTOMATIC TRANSMISSION FUNDAMENTALS **F. 5 hours.**

The principles of operation of planetary gear sets, fluid couplings, torque converters, servor, bands, clutch packs and control circuits are the main objectives of this course.

VTAM 57. TROUBLE SHOOTING **W. 4 hours.**

The ability to diagnose automotive troubles is of great importance. Here the student is given specialized training in this area.

VTAM 58. SERVICE MANAGEMENT **S. 4 hours.**

This course is designed to introduce the student into the basic problems and solutions of service management. It will deal with management control, scheduling work, flat rating service charges, work orders, training, managing service personnel and customer relations.

VTAM 59. AUTOMOTIVE MACHINING AND ENGINE REBUILDING **S. 4 hours.**

This course has been designed to develop basic skills in the specialized field of automotive machine work and engine rebuilding. It includes cylinder reboring, reconditioning of connecting rods, pistons, pins, valve seats and guides, surface grinding and general engine rebuilding.

VTAM 60. BODY SERVICES **S. 1 hour.**

A short course dealing with the servicing and adjusting of doors, window mechanism, trunk lids, glass and trimming.

Audio-Visual

VTAV 11. GRAPHIC ARTS I **F. 3 hours.**

This course is designed to develop competencies in the preparation of graphic materials.

VTAV 12. GRAPHIC ARTS II **W. 3 hours.**

This course is designed to develop competencies in the preparation of transparencies and paper copy materials.

VTAV 13. GRAPHIC ARTS III **S. 3 hours.**

An introduction to graphic arts technology as related to the reproduction of various graphic design techniques; provides opportunity to develop basic skills in offset lithography, screen process, and relief printing.

VTAV 14. VISUAL COMMUNICATION AND GRAPHIC ARTS **F. 3 hours.**

Techniques and methods of graphic arts and their relation to a more effective visual communication medium, including the psychology of perception and also public opinion, polls, and surveys. A survey of the visual communication field.

VTAV 15. INTRODUCTION TO EDUCATIONAL MEDIA **S. 3 hours.**

An introductory formal course in educational media designed to impart the philosophy, aims and content of the field. Emphasis will be placed on the role of communications technology in education. Operation of equipment and production of materials will be overviewed.

VTAV 16. SOUND APPLICATION **S. 3 hours.**

This course is designed to develop competencies in the recording of sound for use by teachers in classroom situations.

VTAV 51. ADVANCED PRODUCTION I— STILL PHOTOGRAPHY **F. 3 hours.**

This course is designed to develop proficiencies in the production of still photographic materials which teachers can use in classroom situations.

VTAV 52. ADVANCED PRODUCTION II — MOTION PICTURE PHOTOGRAPHY **W. 3 hours.**

This course is designed to develop proficiencies in the production of 8-mm and 16-mm motion picture materials which teachers can use for instructional purposes.

VTAV 53. ADVANCED PRODUCTION III **S. 5 hours.**

This course is designed to develop proficiencies in basic television production skills for use in both education and industry. Students will become involved with camera operation, studio lighting, set design, television direction, operation of video tape equipment and other skills basic to television operation.

VTAV 54. ORGANIZATION OF INSTRUCTIONAL MATERIALS I **S. 3 hours.**

This class will serve as a basic course in the techniques of procedural operation of an instructional materials center, a study of the methods of keeping records and data procedures, and basic in-service training techniques.

VTAV 55. ORGANIZATION OF INSTRUCTIONAL MATERIALS II **W. 3 hours.**

A study of library techniques and procedures, both book and film, physical arrangements and traffic patterns. Sources of equipment and materials will be researched and studied.

VTAV 56. ORGANIZATION OF INSTRUCTIONAL MATERIALS III **S. 2 hours.**

A final look at the field and a preview of things to come. Outside speakers will be utilized, and an independent study of the field will be undertaken. A year-end convention-demonstration may be held, with the graduating class managing the arrangements.

VTAV 57. PROJECTION EQUIPMENT MAINTENANCE **W. 4 hours.**

A course in understanding the mechanical and electronic operation of projection equipment, and a study of repair and maintenance problems. The course will consist largely of applied laboratory.

VTAV 58. TRANSCRIPTION EQUIPMENT MAINTENANCE **S. 5 hours.**

A study of understanding the mechanical and electronic operation of tape recorders, record players, and other magnetic storage devices, covering repair, problem locating, and trouble-shooting. The course will consist largely of applied laboratory.

Biological Sciences and Home Economics

VTBI 12. NUTRITION **F. 3 hours.**
A study of the function of foods and their relationship to health.

VTBI 13. DIET THERAPY **F. 1 hour.**
A study of diets as related to conditions of illness and their role in the treatment. Laboratory experience is arranged.

Business

VTBU 12. INTRODUCTION TO BUSINESS **F. 3 hours.**
This is an orientation course for vocational students in business programs to facilitate the adjustment of the student to college and to introduce him to the field of business. The course surveys the American business system with emphasis on the market, structure and function of business operations, and the interrelations between the businessman and his environment.

VTBU 13, 14, 15. PRINCIPLES OF ACCOUNTING **FWS. 3 hours.**
Intended for those vocational students who plan to enter the field of business. The course includes the development of the fundamental principles of double-entry bookkeeping, the balance sheet, profit and loss statements, controlling accounts, partnership accounting, opening corporation books, bonds, bond sinking funds, and managerial uses of financial statements. The final quarter is devoted largely to corporate accounting and the completion of a practice set. Class meets daily.

VTBU 16. SALESMANSHIP **F. 3 hours.**
Selling techniques developed. Psychological factors, initiative, and personality involved in influencing others in business transactions are studied.

VTBU 17. ADVERTISING **W. 3 hours.**
A study involving the student in the dynamics of modern advertising, its practices, principles, media, and methods. It emphasizes the role and responsibilities of advertising in a changing business world.

VTBU 51. BUDGETING I **F. 3 hours.**
Nature and objectives of budgeting, budgeting and management, budgeting procedures.

VTBU 52. BUDGETING II **W. 3 hours.**
Sales budget, production budget, operating expense budget, estimated income statement, capital expenditures budget.

VTBU 53. AUTOMATED ACCOUNTING **W. 3 hours.**
Introduction to automated equipment and its use as applied to payroll, banking, accounts receivable, accounts payable, and general ledger; operation of tab equipment related as input to computer.

VTBU 54. MUNICIPAL OF FUND ACCOUNTING **W. 3 hours.**
Accounting and financial records of national, state, and local governments, and institutions such as schools and hospitals.

VTBU 55. ADVANCED ACCOUNTING **S. 3 hours.**
Accounting statements reviewed, theory of income, asset and equity valuation.

VTBU 56. PURCHASING **S. 3 hours.**
Acquisition and control of equipment and supplies, purchasing policies, selection, source, economics of the market.

VTBU 57. RETAILING-MARKETING **W. 3 hours.**
Basic principles of selling, retailing, merchandising, and advertising. Successful leadership in retail selling explored.

VTBU 58. SMALL BUSINESS MANAGEMENT **W. 3 hours.**
Designed for those students contemplating small business ownership or management. Topics include: Markets, inventory, ownership alternatives, long-range planning, travel and recreation industries.

VTBU 59. BUSINESS MANAGEMENT PRACTICES **F. 3 hours.**
Designed to help managers and directors of children's centers, or for assistants having responsibilities for office work. Record keeping, including the business and financial reports that are essential. Good personnel relations, and sound purchasing techniques.

VTBU 60. MEDICAL TRANSCRIPTION **S. 3 hours.**
The aim of this course is to build shorthand and transcription competency in working with medical correspondence and professional records. Transcribing machines and direct dictation will be used. Prerequisite: Secretarial Science 23 or permission of the instructor.

VTBU 61. LEGAL TRANSCRIPTION **S. 3 hours.**
A course designed for students who plan to work as legal secretaries. The course will consist of transcribing legal material from both shorthand notes and transcribing machines. Emphasis will be placed on the correct arrangement and typing of the various legal documents. Prerequisites: Secretarial Science 14, Secretarial Science 23, and VTSO 57 or permission of the instructor.

VTBU 62. SCIENTIFIC TRANSCRIPTION **S. 3 hours.**
Skill is developed in transcribing from dictation and prepared tapes specialized words and terms used in chemistry, physics, and other sciences. Emphasis on accuracy of transcription and correct spelling. Transcribing machines and direct dictation will be used. Prerequisite: Secretarial Science 23 or permission of the instructor.

Child Care

VTCC 11. NURSERY SCHOOL EDUCATION **S. 3 hours.**
The nursery school as a laboratory for learning about children; its philosophy, goals, and operation. Students will spend one morning a week at assigned laboratory experience, and have a group meeting one day a week for discussion and evaluation.

VTCC 51. PRINCIPLES OF CHILD WELFARE **W. 2 hours.**
History and philosophy of child welfare movement. Study of laws affecting children at all governmental levels. Local, state and national agencies offering family and child welfare services. Licensing and health regulations for children's centers.

VTCC 52, 53. INTERNSHIP IN LICENSED CENTER **WS. 3 hours.**
Students spend a minimum of three hours per day working in licensed centers under a qualified teacher. Supervised by college instructor with conference periods and evaluation of student's progress.

VTCC 55. TECHNIQUES OF ADULT EDUCATION **S. 3 hours.**
This class is intended to help the student understand the teacher's role in adult education: to know how and why adults want to learn; how to plan a course of study for adults; and to learn methods and techniques used in teaching.

Data Processing

VTDP 11. INTRODUCTION TO DATA PROCESSING F. 3 hours.
An introduction to the fundamentals of business data processing systems. This course is designed to introduce the student to basic unit record equipment and the computer. For the person who is contemplating going into the data processing field this is an excellent opportunity to investigate this rapidly growing vocational area.

VTDP 12. KEYPUNCH AND VERIFIER FW. 2 hours.
This course is designed to teach the basic fundamentals of both the keypunch and verifier machines and to develop operational skills with both.

VTDP 13, 14. PRINCIPLES OF PUNCH CARD EQUIPMENT I, II WS. 5 hours.
A course designed to acquaint students with the operation and application of automatic data processing equipment. The student will use the latest IBM equipment in gaining an ability to solve business problems at electronic speeds. Systems and procedures involved in data processing will be stressed throughout.

VTDP 15, 16. DATA PROCESSING MACHINES I, II FWS. 3 hours.
A night school program similar to VTDP 13, 14 but intended primarily for adults in the community.

VTDP 51. ASSEMBLER LANGUAGE AND FLOW CHARTING F. 5 hours.
A beginning programming course that will include computer logic flow charting and programming fundamentals. The student will write programs in Assembler language for the IBM 360 System.

VTDP 52. COBAL PROGRAMMING W. 5 hours.
The student will write programs using Cobol. An emphasis will be placed on traditional business applications such as payroll, accounts receivable and inventory control. Methods will be covered enabling the student to debug and document their programs.

VTDP 53. FORTRAN IV S. 3 hours.
Develops skill in Fortran IV involving scientific, engineering and mathematically oriented programs. Students will convert mathematical formulas. Students will convert mathematical formulas to Fortran IV instruction permitting the computer to handle the mechanics of the problem.

VTDP 54. AUTOMATED SYSTEMS S. 5 hours
This course requires students to work together as a systems team to analyze actual business applications and convert these to an automated system. The new system will be designed and flowcharted by the students and the programs written in Cobol. The course emphasizes the methods of system documentation which will permit adequate disclosure.

VTDP 55. RPG S. 5 hours.
A course teaching the student to program in RPG. The applications will primarily be concerned with the writing of lists, reports and financial statements. Also operating procedures for the 360 Systems will be explained.

Electronics

VTEL 11. MATHEMATICS FOR ELECTRONICS F. 4 hours.
A review of algebra, geometry and the fundamental concepts of trigonometry; special products and factoring; simultaneous equations;

exponents and radicals; quadratic equations; vector algebra including complex quantities and "j" operator. Class: 4 hours.

VTEL 12. MATHEMATICS FOR ELECTRONICS W. 4 hours.

Trigonometry as applied to technical work; use of tables; solution of right triangles; law of sines and cosines; logarithms; graphical representation of the trigometric functions. Class: 4 hours.

VTEL 13. MATHEMATICS FOR ELECTRONICS S. 4 hours.

Mathematics used in solving problems involving vector and harmonic motion; complex rotation and vector algebra; functions and graphs; graphic methods used in solving problems relating to slope and rate of slope change; basic calculus, including limits; derivations and integrations; mechanics of La Place operational calculus as related to the study of control circuits; problem assignments illustrating applications; oscilloscope demonstrations showing mathematical interpretations of electric waveforms; differentiation and integration to provide an understanding of expressions frequently encountered in technical literature. Class: 4 hours.

VTEL 14. SHOP PROCESSES F. 2 hours.

The course is designed to help the student develop information in the use of hand tools, machine tools, equipment and various types of materials which he will encounter in his work as a technician. Laboratory exercises are designed to introduce students to tools, materials and equipment. Shop safety is stressed. Class: 1 hour. Laboratory: 2 hours.

VTEL 15. TECHNICAL DRAWING I F. 1 hour.

An elementary course designed for students having limited drawing experience. Use of templates, including lettering templates; fundamentals of drawing, and drafting room practices; electrical circuit drawing, terms, symbols and standards. All symbols used are those established by the U.S. Bureau of Standards. Emphasis is placed on construction and interpretation of typical industrial drawings. Laboratory: 2 hours.

VTEL 17. CONCEPTS OF DIRECT CURRENT CIRCUITS F. 7 hours.

An introduction to electronics, atomic structure, electrostatics, basic electrical units, electronic components and diagrams, powers of ten ammeters, voltmeters, ohmmeters, multimeters. Magnetic fundamentals, electromagnetism, meter movements, special meters, Kerchoff's first and second laws, electrical power, self inductance, mutual inductance, inductors, capacitors, capacitors marking systems, capacitor theory. Class: 4 hours. Laboratory: 6 hours.

VTEL 18. ALTERNATING CURRENT CIRCUIT ANALYSIS W. 7 hours.

Generation of alternating current, alternating current fundamentals, multi-polar generators, introduction to vectors, A-C resistive circuits, inductance, inductive reactance and impedance, series L-R circuits analysis, parallel L-R circuits analysis, R-L time constants, capacitance and capacitive reactance, series R-C circuits analysis, parallel R-C circuits analysis, R-C time constants, series R-L-C circuit analysis, parallel R-L-C circuit, power in A-C circuits, series, parallel resonant R-L-C circuits, Q and bandwidth of resonant circuits, impedance matching and reflected impedance, transformer losses and ratings; application of vector algebra in the analysis of impedance networks. Prerequisites: Mathematics VTEL 11. The course is conducted in conjunction with Mathematics VTEL 12. Class: 4 hours. Laboratory: 6 hours.

VTEL 19. BASIC ELECTRONICS **S. 7 hours.**

Electron emission, thermionic emitters, vacuum tube, static and dynamic characteristics, concepts of semiconductors, classes of amplifier operations, transistor types, transistor equivalent circuits, beam power vacuum tubes, multisection tubes, gas tubes, phototubes and electron-ray indicators, cathode-ray tube, high frequency tubes, tube and semiconductor manual and specification interpretation, tube designation and basing. Prerequisites: VTEL 15 and VTEL 18. Class: 4 hours. Laboratory: 6 hours.

VTEL 51. PULSE AND VIDEO CIRCUITS I **F. 5 hours.**

The study of electronic circuit technology applying the principles of vacuum tubes to circuits designed to produce nonsinusoidal or pulse signal waveshapes. Analysis of multivibrators, blocking and shock excited oscillators, limitors, clampers and sweep generator circuits will be made both in the classroom and laboratory. Class: 3 hours. Laboratory: 4 hours.

VTEL 52. PULSE AND VIDEO CIRCUITS II **W. 4 hours.**

A continuation of VTEL 51 with emphasis on the analysis of electronic circuits and systems utilizing the circuits studied in VTEL 51. Television and radar is studied applying the principles of pulse shaping circuits. Class: 2 hours. Laboratory: 4 hours.

VTEL 53. TRANSISTOR ELECTRONICS I **F. 4 hours.**

A course of semiconductor action, junction transistor, static characteristics; principles of transistor circuitry, transistor circuit parameters, common-base amplifier, common-emitters amplifier and bias stabilization. Laboratory application will be by audio amplifiers, voltage-regulated power supplies, superheterodyne receivers and transistors, transmitters. Class: 2 hours. Laboratory: 4 hours.

VTEL 56. COMMUNICATION THEORY I **F. 4 hours.**

Amplitude modulation and frequency modulation. Radio frequency oscillators and power amplifiers, antennas, modulators, radio-frequency measurements. Two-way communications. Requirements for government radio operator licenses. Communications application. Prerequisite: VTEL 19. Class: 2 hours. Laboratory: 4 hours.

VTEL 57. COMMUNICATION THEORY II **W. 4 hours.**

Continuation of VTEL 56. Prerequisite: VTEL 51. Class: 2 hours. Laboratory: 4 hours.

VTEL 58. PHYSICS **F. 5 hours.**

Graphical and mathematical analysis of force; laws of motion, machines, mechanical power, strength of material, fluid mechanics and thermal conductivity; basic principles of physics. Emphasis on applied problems. Class: 4 hours. Laboratory: 4 hours.

VTEL 59. ULTRA-HIGH FREQUENCIES AND MICROWAVES I **W. 4 hours.**

Line sections, wave guides and cavities; UHF tubes and oscillators; klystrons, magnetrons and traveling-wave tubes; microwave antennas; principles of radar and microwave systems. Prerequisite: VTEL 19 and VTEL 51. Class: 2 hours. Laboratory: 4 hours.

VTEL 61. CALIBRATION AND MAINTENANCE OF TEST EQUIPMENT **S. 4 hours.**

An introductory presentation of the basic theory and principles of the construction and operation of instruments most often used by industry. Emphasis will be placed on the standardization, calibration, serving and maintenance of the major portion of industrial test equipment. Class: 2 hours. Laboratory: 4 hours.

VTEL 64. RESEARCH PROJECT **W. 1 hour.**

Individual assignment to the development of apparatus of special interest to the student with the instructor's approval. Students provide their materials. A written report of the work will be made. Frequent conferences between the student and his adviser will serve to guide the student's progress. In writing the report the student will be guided by principles learned in VTEL 55. Prerequisite: VTEL 55. Laboratory: 3 hours.

VTEL 65. INTRODUCTION TO COMPUTERS **S. 4 hours.**

The student is introduced to the binary concept. He is shown how two states can be used to perform logic functions and count. He will use simpler logic gates to construct more complex devices. The student studies Boolean algebra, logic truth tables, and how the transition from a logic requirement to a gating network is accomplished. He also will deal with digital subsystems ,and study the mathematical process of binary addition including methods of complimentary binary subtraction, binary coded decimal counting and code conversion. Finally he brings together the above knowledge by discussing digital systems.

Engineering

VTET 11. SPECIFICATIONS AND COST ESTIMATES **F. 2 hours.**

Preparation of specifications and contract documents. Estimates of cost and construction. Bidding schedules for civil engineering projects. Prerequisite: 2 years of high school mechanical drawing or Engineering 10 or consent of instructor.

VTET 12. FLUID MECHANICS AND HYDRAULICS **W. 3 hours.**

Properties of fluids, viscosity, steady, laminar and turbulent flow, Reynoids Number. Hydrostatic pressure on submerged plane surfaces. Bernoulli's Energy Theorem. Pitot tube, venturi, orfice nozzles and weirs. Critical velocity in pipes. Head loss in pipe fittings, valves. Friction coefficients. Hydraulic turbo machinery. Flow in pipe nets and open channels.

VTET 30. CONSTRUCTION PRACTICES **S. 3 hours.**

A study of construction techniques, materials, structural systems, and job, site planning.

VTET 40. CONCRETE I **W. 3 hours.**

An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures.

VTET 51. ELECTRICAL-ELECTRONIC DRAFTING F. 3 hours.
A course designed to develop ability to work with symbols, terms, and drafting standards which are used in electrical and electronic drafting, and to apply them to the drafting of electrical circuits and basic electrical and electronic apparatus. Prerequisite: Engineering 10 or equivalent.

VTET 52. DRAFTING AND DESIGN—STRUCTURAL I F. 3 hours.

VTET 53. DRAFTING AND DESIGN—TOPOGRAPHICAL F. 3 hours.

VTET 54. MECHANICAL DRAFTING W. 3 hours.
A study of advanced drafting techniques, working drawings, conventions, parts lists, and the use of handbooks, technical references and manuals.

VTET 55. DRAFTING AND DESIGN—MECHANICAL SYSTEMS W. 3 hours.

VTET 56. INTRODUCTION TO MACHINE DESIGN S. 3 hours.
An analysis of machine parts and their functions, and the layout of drafting of various threads, gears, cams, and linkages. Prerequisite: VTET 54.

VTET 57. DRAFTING AND DESIGN—ELECTRICAL SYSTEMS S. 3 hours.
A series of courses pursuing in detail and depth such subjects as steel structural detailing, shop diagrams, welding symbols, fabricating operations, concrete layout, reinforced concrete detailing, mechanical systems, electrical systems, and topographic drawings. The series will have a design project so that the student, working with the instructor, will obtain an original solution.

VTET 58 DRAFTING AND DESIGN—ARCHITECTURAL W. 3 hours.
Architectural fundamentals of perspective drawings, shadows and architectural rendering. Symbols, use of templates and special equipment. Working drawings and specifications. Class: 2 hours. Laboratory: 4 hours.

VTET 59. TECHNICAL ILLUSTRATING I 3 hours.
The study of techniques used to prepare illustrations for advertising, marketing, and educational purposes. Basic rendering, airbrush, and scratchboard technique are applied to pictorial, exploded, and orthographic views resulting in a variety of illustrations and transparencies.

VTET 60. TECHNICAL ILLUSTRATING II 3 hours.
A continued study of the techniques used to prepare a variety of illustrations. Emphasis is placed on advanced rendering, airbrush, and pictorial projection techniques. Prerequisite: VTET 59.

VTET 61. REPRODUCTIONS FW. 3 hours.
Use of all types of reproduction methods, blueprinting, offset printing, photographic copying, thermofaxing. Class: 1 hour. Laboratory: 3 hours.

VTET 62, 63. STRENGTH OF MATERIALS I, II FW. 3 hours.
Stress and strain of members in tension, compression, shear and torsion. Beam and column deflection and design. Properties of riveted and welded joints. Centroids and moments of inertia. Laboratory investigations of the properties of various materials and testing procedures used in engineering. Co-requisite: VTET 64. Class: 3 hours. Laboratory: 3 hours.

VTET 64. MECHANICS **F. 3 hours.**
Basic principles of statics. Applications of the basic equilibrium equations to coplanar, and concurrent, nonconcurrent force systems. Miscellaneous topics include friction, hydrostatic loading, cables and arches.

VTET 65. INDEPENDENT STUDY IN ENGINEERING TECHNOLOGY **3 hours.**
Qualified students conduct an in depth study of a problem of their choice related to engineering technology with instructor's approval. A maximum of 5 credits may be awarded dependent upon the extent of the study. Prerequisite: Instructor's permission.

VTET 66. MUNICIPAL ENGINEERING **S. 3 hours.**
History of cities, organizations of municipal services, zoning street layout, subdivisions, water-supply treatment, sewage disposal.

VTET 67. SOILS ENGINEERING **S. 3 hours.**
Properties of soils with compaction, consistency, classification, moisture, frost-action, permeability, strength, lateral pressure, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Class: 3 hours. Laboratory: 2 hours.

VTET 68. HIGHWAY ENGINEERING **W. 3 hours.**
Specific problems of highways, including planning, economy, finance, location, characteristics of design such as curves, alignment, grades, earthwork columns, subgrades, selection of equipment, job planning, estimating and proposal preparation.

Fine Arts

VTFA 11. ELEMENTARY ART **W. 3 hours.**
Methods of teaching art at preschool levels are stressed. Students work in various media in execution of problems pertaining to art for this age child. Art experiences for children designed to inspire enjoyment and expression. Preschool and kindergarten guidance emphasized as the foundation for appreciation and love of art.

VTFA 12. CREATIVE PLAY ACTIVITY—DRAMA **W. 3 hours.**
This course is designed for those students who will be working with preschoolers, kindergarten and elementary students. Through the creative process students will develop plays from stories, books, historical events, etc. Also, there will be a section on puppetry.

VTFA 13. CREATIVE PLAY ACTIVITY—MUSIC **S. 3 hours.**
This course is designed for those students who will be working with preschoolers, kindergarten and elementary students. Through the creative process students will develop simple tunes, knowledge and appreciation of music. A part of the course will be on the creating of musical instruments from simple objects.

Fire Science

VTFS 51. FUNDAMENTALS OF FIRE PREVENTION **F. 3 hours.**
Organization and function of the fire prevention organization; inspections; surveying and mapping procedures; recognition of fire hazards; engineering a solution of the hazard; endorsement of the solution; public relations as effected by fire prevention.

VTFS 52. FIRE HYDRAULICS **F. 3 hours.**

Review of basic mathematics; hydraulic laws and formulas as applied to the fire service; application of formulas and mental calculation to hydraulic problems; water supply problems; underwriters' requirements for pumps.

VTFS 53. FIRE APPARATUS AND EQUIPMENT **F. 3 hours.**

Driving laws, driving technique, construction and operation of pumping engines, ladder trucks, aerial platforms, specialized equipment; apparatus maintenance.

VTFS 54. HAZARDOUS MATERIALS I **F. 3 hours.**

A review of basic chemistry, storage, handling, laws, standards and fire fighting practices pertaining to hazardous materials.

VTFS 61. PLANT LAYOUT FOR FIRE SAFETY **W. 3 hours.**

An analysis of industrial fire protection.

VTFS 62. RELATED CODES AND ORDINANCES I **W. 3 hours.**

Familiarization with national, state, and local laws and ordinances which influence the field of fire prevention.

VTFS 63. FIRE FIGHTING TACTICS AND STRATEGY **W. 3 hours.**

Review of fire chemistry, equipment, and manpower; basic fire fighting tactics and strategy; methods of attack; pre-planning fire problems.

VTFS 64. HAZARDOUS MATERIALS II **W. 3 hours.**

Continuation of the study of hazardous materials covering storage, handling, laws, standards, and fire fighting practices with emphasis on fire fighting and control at the company officer level.

VTFS 71. FIRE DEPARTMENT ADMINISTRATION **S. 3 hours.**

Consideration of basic concepts and principles of administration applicable to the organization and administration of an efficient fire department.

VTFS 72. RESCUE AND FIRST AID **S. 5 hours.**

Rescue practices, the human body, emergency care of victims, childbirth, artificial respiration, toxic gases, chemical and diseases, radioactive hazards, rescue problems, and techniques.

VTFS 73. PROPERTY AND CASUALTY INSURANCE **S. 3 hours.**

An analysis of the fire insurance rating structure. Elements involved in establishing insurance rates. The grading system for cities and towns, the classification of cities and towns, and hazard factors in occupancy, construction and exposures.

VTFS 74. FIRE INVESTIGATION **S. 3 hours.**

Introduction to arson and incendiarism, arson laws, and types of incendiary fires. Methods of determining fire cause, recognizing and preserving evidence, interviewing and detaining witnesses. Procedures in handling juveniles, court procedure and giving court testimony.

VTFS 75. FIRE PROTECTION EQUIPMENT AND SYSTEMS **S. 3 hours.**

Portable fire extinguishing equipment; sprinkler systems; protective systems for special hazards; fire alarm and detection systems.

Graphic Communications

VTGC 70. DARKROOM PROCEDURES **F. 3 hours.**

A study of the darkroom, its equipment, and the functions therein. The chemistry of photography and film will be studied. The student will become proficient at processing film.

VTGC 71. COLD-TYPE COMPOSITION AND PASTE UP I **F. 3 hours.**

A basic study of cold-type composing involving the use of various composing machines. Also includes development of paste-up techniques, word spacing, type selection, use of white space and machine proficiency. Lab required.

VTGC 72. COLD-TYPE COMPOSITION AND PASTE UP II **W. 3 hours.**

A more advanced study of cold-type composition and paste-up. Skills are developed in multiple form work and more complicated techniques are developed. Lab required. Prerequisite: VTGC 71.

VTGC 73. DUPLICATING—OFFSET I **F. 3 hours.**

Methods of printing and duplicating are introduced. Principles of offset duplicating explained and practiced.

VTGC 74. DUPLICATING—OFFSET II **W. 3 hours.**

Various machines explained and skills practiced. Long-runs, color and quality copy produced.

VTGC 75. COMMERCIAL DESIGN AND LAYOUT **W. 3 hours.**

A lecture and laboratory course in fundamental principles and techniques using a variety of both black-and-white and color media; pattern and design concepts are studied.

VTCG 76. PHOTOGRAPHY FOR PHOTO LITHOGRAPHY AND PLATEMAKING **S. 3 hours.**

Various techniques of camera, platemaking and darkroom work are developed. Also includes various methods of screening, masking and color separation. Lab required. Prerequisite: VTCG 70.

VTGC 77. GRAPHIC COMMUNICATIONS PROBLEMS **S. 3 hours.**

All skills developed by the student to produce work and solve problems that occur in the graphic arts field are practiced. This course is designed to develop the student's ability to deal with various situations on his own. Lab only—6 hours. For Graphic Communications majors only.

Health Programs

VTHE 47. MEDICAL TERMINOLOGY **F. 3 hours.**

This course includes basic medical terminology as applied to major systems of the body and related diseases. It includes special applications as related to medical practice with special emphasis on spelling.

VTHE 54, 55. LABORATORY TECHNIQUES **FW. 3 hours.**

The student learns to perform basic laboratory procedures such as blood counts, urinalysis, EKG, etc. Actual laboratory experiences are provided.

VTHE 59. MEDICAL OFFICE ASSISTING **S. 3 hours.**

The student learns to deal with patients and their families, to observe, keep records, help with physical examinations, and to assist the physician in many ways.

Humanities

VTHU 21. CHILDREN'S LITERATURE **WS. 3 hours.**

A course designed to give those who are interested in literature for the child an opportunity to survey the best in books. Material is judged for various grade levels as well as for preschool and special education. Skills in presenting literature to children are developed. The course is also intended for students majoring in Library Science.

Job Entry

VTJE 1. SHORTHAND
VTJE 2. BOOKKEEPING
VTJE 3. BUSINESS MATHEMATICS
VTJE 4. BASIC BUSINESS ENGLISH
VTJE 5. TYPEWRITING
VTJE 6. WORK STUDY
VTJE 7. LABORATORIES
VTJE 8. SPEECH
VTJE 9. PERSONAL DEVELOPMENT
VTJE 10. OFFICE MACHINES

Library Technician

VTLT 11. INTRODUCTION TO LIBRARY TECHNOLOGY **F. 2 hours.**

This course is designed to give an overview of library service. A brief introduction to library history and philosophy is followed by a study of library organization, resources, public services, internal operations, personnel, career opportunities and current trends.

VTLT 12. TECHNICAL PROCESSES **F. 3 hours.**

The student is introduced to the basic book, periodical, and pamphlet selection aids and how to use them. Practice is given in preparing orders, checking invoices, keeping records, collating, accessioning, giving book talks, telling stories and preparing bulletin boards. An introduction to care of films, use of projectors, tape recorders, and record players is also included.

VTLT 13. MATERIAL PROCESSING AND CIRCULATION **W. 3 hours.**

This course introduces the student to various circulation systems and circulation records keeping. Includes interlibrary loan procedures and special handling of unusual materials. Attention is given to the mechanical preparation of books for library use and the care and repair of books.

VTLT 14. REFERENCE MATERIALS **S. 3 hours.**

This course is designed to enable the technician to make effective use of the library's resources. Students are required to construct bibliographies on various subjects and to become familiar with the use of the card catalog, handbooks, yearbooks, vertical files, etc. Practice is given in answering reference questions.

VTLT 51. CLASSIFICATION AND CATALOGING **F. 4 hours.**

Elementary principles of classification based on major categories of the Dewey decimal system. Acquaintance with the Library of Congress system. Student learns format and content of catalog card, principles of filing, use of subject headings and cutter numbers, ordering and use of Library of Congress cards. A practical approach to classification with particular emphasis on school and small libraries.

VTLT 52. CONTEMPORARY BOOKS AND PUBLISHING **S. 3 hours.**

A study of contemporary authors and publishers.

VTLT 53. LIBRARY SERVICES AND ADMINISTRATION **W. 3 hours.**

A review of types of libraries, their establishment, governing bodies, clientele, resources and financial support. Elementary library organization and administration. Preparing a library budget.

VTLT 54, 55. LIBRARY PRACTICE **WS. 2, 3 hours.**

The technician spends five hours per week for two quarters actually working in a library. Experience is provided under supervision of all types of library operations for which the technician is being trained.

VTLT 56. LIBRARY AUTOMATION **W. 2 hours.**

A study of applications of modern data processing procedures and equipment to the operations of a library.

VTLT 57. LIBRARY PROBLEMS **S. 2 hours.**

The work of the national and state library associations and interlibrary cooperation. The types of positions in various libraries. The problem of securing and holding a position.

Mathematics and Engineering

VTME 52. GEOLOGIC MAPPING **S. 5 hours.**

A survey of mapping and measuring techniques implemented by actual mapping of mines, mapping of transit, and plane table, use of aerial photographs, and measuring of stratigraphic sections.

Practical Nursing

VTPN 11. NURSING ARTS AND SKILLS I **F. 8 hours.**

This course is designed to teach the basic patient side nursing skills, to orient students to nursing institutions and to give them actual experience with patients. Time is spent in both classroom and hospital laboratory areas.

VTPN 12. OBSTETRIC NURSING I **F. 1 hour.**

The student is introduced to the history of obstetric nursing, reviews the philosophy and anatomy of the reproductive system and studies the care of the expectant mother through the prenatal period.

VTPN 16 STRUCTURE AND FUNCTION **F. 3 hours.**

A study of the structure and function of the human body, along with related medical terminology. An introduction to bacteriology with emphasis on common forms of pathogenic bacteria.

VTPN 17. PERSONAL HEALTH AND RELATIONSHIPS F. 2 hours.

A study of and a guide to good personal health. Includes personal hygiene, mental health, hereditary and environmental factors, and a brief look at drug abuse. The student is oriented to school life and to ethics and interpersonal relationships.

VTPN 21. NURSING ARTS AND SKILLS II W. 2 hours.

This course teaches the more advanced techniques and skills used in care of patients, with emphasis placed on asepsis.

VTPN 22. OBSTETRIC NURSING II W. 2 hours

A study of the care of the expectant mother during birth and the post-partum period. Also includes the study of the infant during the natal and post-natal periods. Laboratory experience is included.

VTPN 23. CONDITIONS OF ILLNESS I W. 4 hours.

The care of the elderly; rehabilitation nursing, with special study of exercises and diversional therapy; care of patients with specific disorders of the musculoskeletal system requiring the use of casts, traction, and surgery in their correction; and a study of the nursing care of the patient being prepared for surgery and immediately following surgery. Emotional and psychiatric disorders the nurse may encounter in the general hospital are included.

VTPN 24. DRUGS AND DOSAGE W. 1 hour.

Designed to teach the student guidelines for giving medications; also gives some historical background. Arithmetic is included.

VTPN 25, 35, 45. CLINICAL NURSING I, II, III W S Smr. 13 hours.

Under supervision the student gains experience in various clinical facilities as related to curriculum content.

VTPN 32. PEDIATRICS S. 2 hours.

The student studies growth and development of the normal child and diseases and treatments peculiar to children. A brief overview of mental retardation is included.

VTPN 33. CONDITIONS OF ILLNESS II S. 4 hours.

A course designed to teach the student about the diseased conditions of the body. Treatment and nursing care of patients with these conditions, primarily medical and surgical, are studied.

VTPN 34 PHARMACOLOGY S. 2 hours.

A study of specific medications, their uses, effects, and untoward actions in relation to the human body.

VTPN 36. FIRST AID S. 1 hour.

This is the standard American Red Cross course consisting of ten hours of instruction.

VTPN 43. CONDITIONS OF ILLNESS III Smr. 2 hours.

A study of communicable diseases and the laws governing patients with communicable disease. An overview of disaster and emergency nursing and civil defense plans as related to the community and/or hospitals. A brief study of the duties of the practical nurse in home nursing is included.

VTPN 46. COMMUNITY HEALTH Smr. 1 hour.

This course is designed to provide information about the role of community, state and federal government in safeguarding and improving

the health of people. Student learns about the local Department of Public Health and its functions. Field trips are included.

VTPN 47. VOCATIONAL RELATIONSHIPS **Smr. 1 hour.**

Designed to teach legal and ethical responsibilities of a practical nurse. How to apply for a job, how to retain it, and how to resign.

Police Science

VTPO 11. ADMINISTRATION OF JUSTICE 1 **S. 3 hours.**

Origin, history and development of the common law of England and the U.S. from Roman, Anglo-Saxon and Norman sources; fundamentals of constitutional and criminal law concepts; elements of local, state and federal jurisdiction and procedure as they apply to law enforcement.

VTPO 51. INTRODUCTION TO LAW ENFORCEMENT **F. 3 hours.**

History and philosophy of law enforcement and the development of modern American police system; jurisdiction of local, state and federal law enforcement agencies; fundamentals of criminal behavior and the social order; and an introduction to social pathology and current police problems.

VTPO 52. POLICE PATROL AND PROCEDURES **F. 3 hours.**

Responsibilities, techniques and methods of foot and cruiser patrol. Elements of property protection, routine inquiry. The laws of arrest, search and seizure.

VTPO 53. JUVENILE DELINQUENCY AND JUVENILE PROCEDURE **F. 3 hours.**

A study of the origin and development of juvenile agencies; organization, functions and jurisdiction of juvenile courts; juvenile statutes, detention, court procedure and case disposition. The nature and causes of juvenile delinquency and crime; juvenile sub-cultures in contemporary society; custody and treatment of the juvenile offender.

VTPO 54. NARCOTICS AND DRUGS **F. 3 hours.**

Description, chemical properties and results of the use of narcotics and other dangerous drugs. The discovery and investigation of narcotics and other dangerous drugs. The discovery and investigation of narcotics peddlers and users; behavior and treatment of the addict; prevention techniques; cooperation with federal agencies.

VTPO 61. CRIMINAL LAW **W. 5 hours.**

An analysis of origin and structure of common law crimes and procedures; statutory crimes—felonies and misdemeanors. Definitions and distinctions between criminal and civil law; criminal court procedures; assigned criminal law case book readings; Federal and State reports; Colorado criminal code sections; the law enforcement officer as a witness; principles and techniques of direct and cross examination.

VTPO 62. EVIDENCE **W. 3 hours.**

A study of the nature, types and degrees of criminal evidence; rules governing admissibility, competency and relevancy; presentation of physical and other material evidence; direct and circumstantial evidence; hearsay rules and exceptions.

VTPO 63. CRIMINAL INVESTIGATION AND INTERROGATION W. 3 hours.

Fundamentals of investigation: duties and responsibilities of the detective; standard and approved procedures of crime scene search, collection and preservation of evidence: recording of data of major and minor crimes. Modus operandi systems; scientific aids and other sources of information; inquiries, interviews, and interrogation methods and techniques; preparation for court action and case follow-up.

VTPO 64. TRAFFIC CONTROL AND INVESTIGATION W. 3 hours.

The regulation, control and enforcement of Colorado traffic law and municipal ordinances. Fundamentals of traffic accident investigation, traffic courts and driver's schools, safety campaigns and public information.

VTPO 71. FIRST AID S. 3 hours.

A course in which the student learns the proper emergency first aid techniques to deal with personal or community disaster. The American National Red Cross course content is used and an ARC Standard or Advanced certificate is issued to qualified students. Lecture and laboratory.

VTPO 72. CRIMINAL PROCEDURE AND EVIDENCE S. 3 hours.

Principles, duties, and mechanics of criminal procedure as applied to important areas of arrest, force, and search and seizure. Study and evaluation of evidence and proof; kinds, degrees, admissibility, competence, and weight: specifically deals with rules of evidence and procedure of particular import at the operational level in law enforcement.

VTPO 73. DEFENSIVE TACTICS S. 2 hours.

Techniques and special methods of self defense against dangerous weapons. Come-alongs and approved methods of minimizing resistance to arrest. Demonstration and drill in non-injurious restraint of prisoners and the mentally ill. Elementary Judo.

VTPO 74. CONSTITUTIONAL LAW S. 3 hours.

An introduction to the application of U.S. Supreme Court ruling which affect law enforcement. Assigned case book briefings of major constitutional decisions: analysis of federal statutes, interstate rulings and cases involving constitutional amendments affecting law enforcement jurisdiction and civil liberties.

VTPO 75. POLICE AUXILIARY SERVICES S. 3 hours.

Principles of organization and administration as applied to auxiliary services. Records and communications, custody, central services, and police logistics. Special attention to police applications of electronic data processing and the collection of performance data.

Physical Science

VTPS 11. BASIC ELECTRICITY FOR A-V W. 3 hours.

This course is designed to teach the fundamental principles of electricity and to develop an understanding of electrical circuitry and its application.

VTPS 12. BASIC ACOUSTICS AND OPTICS **FS. 3 hours.**

A beginning in the theory and operation of sound and acoustical principles, their behavior, function, and properties. Also covered will be the field of optics, principles, and theory of operation, as applied to both visual and mechanical means.

VTPS 13. REGIONAL NATURAL SCIENCE **S. 3 hours.**

A course designed to acquaint students with the physiographic and ecologic relationships of the natural environment, with emphasis placed on the climate, geology, vegetation, wildlife, and the scenic and recreational attractions of the region. Related activities are included.

VTPS 51. GEOLOGIC TERMINOLOGY **F. 2 hours.**

A survey of the terminology used in the many fields of geology and which the technicians is likely to encounter. It will include terms and abbreviations used in studies of well samples, map making, petroleum drilling reports, rock and mineral descriptions.

VTPS 53. ROCKS AND MINERALS **W. 3 hours.**

A review of the more common rock-forming minerals and the more common types of igneous, metamorphic, and sedimentary rocks. Ore-forming minerals will be studied as time permits. Lectures will be supplemented by laboratory studies emphasizing sight identification.

VTPS 54. ENGINEERING GEOLOGY **W. 3 hours.**

A study of the application of geology and geologic methods to engineering. Geology as related to landslides; highway construction; dam-site evaluation; canal construction; construction material such as sand, gravel, stone, etc.; permafrost and other features. Also includes soil testing and other engineering applications.

VTPS 55. ECONOMIC GEOLOGY **S. 4 hours.**

Studies of the nature, occurrence and distribution of economic deposits of coal, petroleum, oil shale, metals, and other non-metals. Emphasis will be placed on these fields with greatest promise of employment. Will include an overview of the field of geology emphasizing exploration, development, equipment, taxation, prices, etc.

VTPS 56. GEOPHYSICAL TECHNIQUES **S. 3 hours.**

A study of the geophysical techniques currently used in geology. Includes a survey of types of geophysical instruments, their operating principles, and nature of results obtained. When possible, instruments such as mass spectrometers, X-ray spectrometers, computers, well-logging equipment, geiger counters, scintillation counters, seismographs, and other types will be observed in operation.

VTPS 57. SCIENTIFIC TERMINOLOGY **W. 3 hours.**

This course is designed to acquaint the student with the terminology in the various fields of physical sciences. It includes a knowledge of terms, units, and technical vocabulary necessary for aides in scientific fields such as chemistry, physics, engineering, geology, and related areas.

VTPS 58. BASIC ELECTRONICS **W. 3 hours.**

This course is designed to give the students a basic background of electronics to understand the fundamental principles of electronics, and to help develop an understanding of electronic circuitry.

VTPS 59. MAP DRAFTING FOR GEOLOGY **W. 3 hours.**

A one-quarter course intended for students in the geologic technician program. Stress is placed on fundamentals of drafting such as lettering and use of elementary drafting equipment. Also included are the interpretation and actual construction of topographic and geologic maps as well as other illustrations of value in preparation of technical reports. Class meets for 2 hours lecture and 2 hours laboratory per week.

VTPS 60. SUBSURFACE TECHNIQUES **F 2 hours.**

An introduction to various methods of interpreting data obtained from mechanical hole-digging devices, well cuttings and cores. Methods of obtaining data will be examined, and data will be posted on maps by students in a manner that makes it usable for exploration techniques. Students will be required to construct various types of maps that are commonly used in petroleum and mining industry such as isopach, isolith, sand-shale ratio, structures, etc. Exercises in logging of cores and well cuttings will be performed to give students practical experience.

Social Science

VTSO 11. APPLIED PSYCHOLOGY **S. 3 hours.**

A study of some current psychological finds on perception, motivation, prejudice, and other related topics of importance in understanding and dealing with people in work and leisure-time activities. The class is primarily designed for those in the Associate of Applied Science programs.

VTSO 12. HISTORY OF THE WEST **F. 3 hours.**

A history of the Rocky Mountain region including the Great Plains and the Southwest. Included is a history of the Indian tribes in this location and the subsequent invasion by the trapper, the miner, the cattleman and the farmer. The unique cultural and political contributions of the West to the American way of life are the basic theme or objective of the course.

VTSO 13. PSYCHOLOGY OF LEARNING **W. 3 hours.**

This course is designed to cover the basic principles of learning theory for the technician. Content will include multi-media approaches to education and principles of programed instruction.

VTSO 14. HUMAN RELATIONS **S. 3 hours.**

This class deals with supervision of non-professional personnel, personnel relationships, faculty relationships, salesmanship, and general working relationships with others and the problems inherent to individual and group relations.

VTSO 15. PERSONAL DEVELOPMENT **W. 3 hours.**

Stresses the importance of the individual in business behavior with emphasis on developing a better understanding of self and others. The course examines proper appearance, courtesy, conduct, and human relationships in business with the objectives of providing a foundation for a working philosophy of life in keeping with Mesa College's goal for the development of the individual as well as particular skills. This course is sectioned with separate classes for men and women.

VTSO 51. APPLIED SOCIOLOGY **W. 3 hours.**

The purpose of this course is to familiarize the student with some of the principles that human relationships are based upon, and also the results of social situations. The emphasis is placed on social relationships in a changing society. Topics to be covered are mass communications, collective behavior, popular culture and social problems.

VTSO 52. APPLIED ECONOMICS **F. 3 hours.**

This course explores the basic American economic system with an analysis of capitalism, governmental monetary policies and money, and banking as they affect logical governmental units.

VTSO 53. SCHOOL AND MUNICIPAL LAW **F. 3 hours.**

Creation, annexation, dissolution, control of local governmental units; powers, duties, and liabilities of governmental units; legislation affecting the schools.

VTSO 54. GOVERNMENT PROBLEMS I **W. 3 hours.**

A course designed to study and explore problems as they relate to actual situations in governmental units such as counties, municipalities, and school districts.

VTSO 55. GOVERNMENT PROBLEMS II **S. 3 hours.**

A continuation of Governmental Problems I.

VTSO 56. STATE AND FEDERAL LAW **S. 3 hours.**

The courts, structure and jurisdiction, legislation and procedure, social legislation.

VTSO 57. LEGAL TERMINOLOGY **S. 3 hours.**

A course designed for students who plan to work as legal secretaries. The purpose of the course is to acquaint students with legal terminology as used in legal forms. Emphasis is placed on the spelling, meaning, and use of legal terms and phrases.

VTSO 58. LEGAL PROCEDURES I **W. 3 hours.**

A course to acquaint the student with everyday practices in the law office. Concentration on legal papers, forms, documents, and instruments.

VTSO 59. LEGAL PROCEDURES II **S. 3 hours.**

A continuation of Legal Procedures I using actual material obtained from law offices including transcription.

Travel and Recreation

VTTR 11. SURVEY OF TOURISM **S. 3 hours.**

A course designed to acquaint students with opportunities in travel and recreation facilities. Representatives of tourist industries will address the students; the climate of what is coming; trends; etc.

VTTR 51, 52. TOURIST MANAGEMENT I, II **FW. 3 hours.**

This course will explore problems with specific applications to the various phases of the travel and recreation industry.

VTTR 53. WORK EXPERIENCE **S. 15 hours.**

The student will be placed in travel and recreation industries such as the Forest Service, cooperating airlines, hotels, motels, etc., on a cooperative experience basis.

Welding

VTWL 12. OXYACETYLENE THEORY **F. 3 hours.**

Instruction in the proper care and use of welding equipment; safety; identification of metals and alloys; selection of the proper rods and fluxes; methods of lay-out, cutting, fit-up, taking, preheating and annealing. A study is made of the principles and the manipulative skills of oxyacetylene welding in correlation with metal thickness, tip sizes, and gas pressures. Shop: 5 hours.

VTWL 13. OXYACETYLENE WELDING I **F. 3 hours.**

Shop practice in safe care and use of oxyacetylene cutting and welding equipment. Weld beads, edge joints, corner joints, lap joints and double-bevel joints on plate steel in all positions. Cutting straight lines, bevels and piercing holes in steel plate. Shop: 10 hours.

VTWL 14. ARC WELDING I **F. 3 hours.**

A beginning course in electric arc welding. Welding of mild steel in flat and horizontal positions. Care and use of tools and equipment and safety precautions and practices. Shop: 5 hours.

VTWL 15. APPLIED MATHEMATICS **F. 3 hours.**

Basic arithmetic, fractions, decimals, percentages, and basic algebra. Instruction in measuring instruments.

VTWL 21. BLUEPRINT READING **W. 3 hours.**

Basic principles of blueprint interpretation and visualization of objects as applied to industrial practices. Class: 3 hours. Shop: 2 hours.

VTWL 23. OXYACETYLENE WELDING II **W. 4 hours.**

A continuation of Oxyacetylene Welding I with additional practices in machine cutting and welding tee joints and butt joints on steel plate in all positions. Test procedures are used on all position welds to develop skill in making sound welds. Pipe welding, fusion welding of cast iron, brazing, hard surfacing, and aluminum welding. Shop: 10 hours.

VTWL 24. ARC WELDING II **W. 4 hours.**

Continuation of Arc Welding I, refining the welding of mild steel in horizontal, vertical positions, and overhead positions. Shop: 10 hours.

VTWL 25. APPLIED MATHEMATICS II **W. 3 hours.**

Practical applications of algebra and geometry as used in industry. Advanced mensuration. Introduction to trigonometry.

VTWL 31. FABRICATION LAYOUT **S. 3 hours.**

Basic layout techniques from shop drawings to fabrication of sheet metal, plate, pipe, and structural shapes. Class: 2 hours. Shop: 3 hours.

VTWL 32. ELECTRIC ARC THEORY **S. 2 hours.**

A study of the different types of welding machines, electrodes, structural joints and positions used in arc welding; the principles that control the arc welding procedures and manipulative techniques; the weldability of metals with various types of electrodes, using current polarity and current. Safety factors and practices relating to welding machines, welding procedures, repairing containers of various types, and personal safety are included.

VTWL 34. ARC WELDING III **S. 7 hours.**

Continuation of Arc Welding II with emphasis on pipe welding and special application such as hard facing, welding of non-ferrous metals, and fabrication. Heliarc welding is introduced. Shop: 18 hours.

VTWL 41. SHOP MANAGEMENT **Summer 5 hours.**

Study of shop operation, expenditures, floor-plan design and equipment for the modern day shop. Expectations and management of employeees.

VTWL 42. STRUCTURAL WELDING THEORY **Summer 2 hours.**

Codes issued by the American Petroleum Institute, American Metal and Welding Societies, and insurance companies are studied. These codes apply to the welds on all types of structural joints and to the types of welding electrodes used in making them. Laboratory experience includes applications of jigs and fixtures in time-saving operations for fabricating structural units for buildings, machines, bridges, and containers.

VTWL 44. ARC WELDING IV **Summer 7 hours.**

Continuation of Arc Welding II, including structural welding, "TIG" welding of stainless and high carbon steels, "MIG" employing the principle of a consumable wire fee. Shop: 18 hours.

VTWL 45. METALLURGY **Summer 5 hours.**

A description of how metals are smelted and refined. Combinations of metals which form certain alloys of steel, copper, lead, etc., are studied. Discussions and demonstrations are given on various methods of heat-treating to bring about certain desired results in metals. Class: 3 hours. Shop: 2 hours.

Continuing Education, Community Services

"It's Never too Late to Learn"

One of the community college's finest traditions is providing special opportunities for adults of the community to participate in academic, vocational, cultural, and recreational activities according to their needs, interests, or desire to learn.

Mesa College offers many courses for adults of the area. The Office of Continuing Education serves thousands of residents each year through offerings that include cultural, informational, vocational, basic education, and general education courses, self-improvement and hobby classes, recreation groups, parent-education and preschool classes, and public forums and discussion groups concerned with timely topics.

Most of these offerings are provided in the evenings either for credit or no-credit and for varying lengths of time. Many regular day students register for night classes to facilitate schedules or to provide free time during the day for part-time job opportunities. Learning activities are varied and include discussions, demonstrations, laboratories, shop work, and field trips. Members of the regular Mesa College faculty are utilized in the evening program along with many qualified guest instructors from business, industry, the arts, and other academic institutions who add new experience and lend greater interest to the various offerings.

Through the College's cultural programs, regular students have opportunity to participate with adults of the community in various musical groups, including the Mesa College Civic Symphony Orchestra, the Mesa College Community Choir, and the Mesa College Community Band.

The College cooperates with various four-year colleges and universities of the state in providing facilities for on-campus extension classes and other services. Most of the courses made available through this arrangement are at the upper-division or graduate level. This service provides study beyond the junior college level, within certain limits, for those who do not find it expedient to go elsewhere after graduating from Mesa College.

Summer Session

Mesa College offers a summer program based primarily upon needs and wishes expressed by regularly enrolled students and residents of the community.

Typical offerings in previous summers have included courses in the areas of Business, Social Science, Mathematics and Engineering, Physical Science, Humanities, Fine Arts, Data Processing, and Vocational Education.

A prescribed minimum of students is required to justify offering any particular course.

This program operates on an eight-week schedule with classes being held in forenoons only. The 1971 Summer Session will begin Monday, June 14. (See calendar on page 5.)

Tentative bulletins on Summer School offerings are usually available from the Director of Summer Session or from the Director of Admissions during Spring Quarter.

The following courses were taught during the 1970 Summer Session and probably will be offered, along with others, during Summer 1971:

Course	No.	Title
Bicl	11	Beginning Typewriting
Psy	21	Biology and Lab
Psy	22	General Psychology
Psy	33	General Psychology
Psy	74	Human Growth and Develop.
Engr	11	Educ. Psychology
Chem	21	Engr. Graphics and Design
Chem	23	General Chemistry
Engl	4	Intro. to Organic Chemistry
Engl	11	Pre-Freshman English
Engl	12	English Composition
Engl	13	English Composition
Engl	21	English Composition
Engl	22	Spelling
Lit	31	Word Study
Lit	32	World Literature
Lit	33	World Literature
Lit	61	World Literature
Lit	61	English Literature
Bus	12	U. S. Literature
Bus	21	Intro. to Business
Bus	27	Business Machines
Bus	36	Advertising
Bus	41	Pers. Fin. and Money Mgmt.
Econ	51	Business Math
Econ	51	Principles of Economics
Hist	11	World Civilizations
Hist	31	History (U.S.)
Math	1	Basic Math
Math	10	College Algebra
Math	28	College Algebra and Trig.
CEDE	11	Driver's Education
Acctg	31	Principles of Accounting
Soc	44	Marriage and Family
Soc	61	General Sociology
VTDP	11	Intro. to Data Processing
VTDP	12	Keypunch
VTEX	41	Small Engine Repair
Spch	11	Fundamentals of Speech
CEDI	19	Sewing for Teens
CEPE	45	Judo
PE	14	Golf
SS	10,11	Beg. and Int. Typewriting
Psy	21	General Psychology
Psy	22	General Psychology
Psy	23	General Psychology
Bus	21,22,23	Business Machines
Hist	12	World Civilizations
Hist	20	History of Colorado
Hist	32	U. S. History
Engl	4	Pre-Freshman English
VTDP	12	Keypunch
CEDP	11	Production Keypunch
Econ	52	Principles of Economics
Spch	11	Fundamentals of Speech
Educ	51	Introduction to Education
Soc	63	Social Problems

Personnel

MESA JUNIOR COLLEGE DISTRICT COMMITTEE

HERBERT L. BACON, President (1975) ..... Grand Junction
MRS. HELEN DUFFORD, Secretary (1973) ..... Grand Junction
ROE F. SAUNDERS, Treasurer (1971) ..... Fruita
WARREN L. TURNER (1975) ..... Grand Junction
R. R. GIBSON (1973) ..... Collbran
FRANK M. HOCKENSMITH, College Attorney ..... Grand Junction

(Date indicates expiration of six-year term)

OFFICERS OF ADMINISTRATION—MESA COLLEGE

THEODORE E. ALBERS ..... President
B.A., M.A., University of Denver; Ed.D., University of Colorado

LOWELL HEINY ..... Vice-President
B.A., McPherson College; M.A., Colorado State College; Ed.D., University of Colorado

HERBERT WELDON ..... Dean of Instruction
B.A., M.A., Western State College

KENNETH LeMOINE ..... Dean of Special Services
B.A., M.Ed., University of Colorado

JAY TOLMAN ..... Dean of Students
B.S., M.S., Utah State University

TILMAN BISHOP ..... Associate Dean of Students
B.A., M.A., Colorado State College

BETSY SNEED ..... Associate Dean of Students
B.S., East Texas State College; M.A., Adams State College

CLARENCE A. SCOTT ..... Director, Admissions and Records
B.A., Colorado State College; M.A., University of Denver

KEITH MILLER ..... Director, Continuing Education
B.A., M.A., Colorado State College

ALFRED J. GOFFREDI ..... Director, Area Vocational School
B.A., M.A., Western State College

RICHARD APPEL, C.P.A. ..... Business Officer
B.S., Fort Hays State College

DIRECTORS OF COLLEGE SERVICES

NATHAN E. BRUNDRIDGE ..... Assistant Director, Continuing Education
B.S., M.Ed.Adm., Colorado State University

GARY CALHOUN ..... Assistant Business Officer
B.S., B.A., University of Denver

CARL COOK ..... Data Processing Supervisor
International Business Machines School

CARL CLOSE ..... Superintendent of Buildings and Grounds

WALLACE DOBBINS ..... Director of Public Information and College Publications
B.Ed., Colorado State University; M.A., Western State College

DIETER FEILER ..... Assistant Director, College Center
B.A., Arizona State University

EUGENE HANSEN ..... Director of College Center
B.A., M.A., Western State College

CHARLES HENDRICKSON ..... Director of Audio-Visual Services
B.A., M.A., Colorado State College

JOHN J. JEFFERSON ..... Director of Housing and Assistant Director of Admissions and Records
B.A., M.A., Adams State College

JOHN C. KESTER ..... Assistant Purchasing Officer
A.S., Mesa College

BEE RANDOLPH, R.N. ..... Director of Health Service
St. Luke's School of Nursing

MARION E. SHAW ..... Job Development and Placement Specialist
B.S., Colorado State University

BUD SMOCK ..... Counselor; Financial Aids and Placement Officer
B.A., M.A., Western State College

ROBERT STOKES ..... Area Vocational Guidance Specialist
B.A., Western State College

EDWARD STRNAD ..... Purchasing Officer
B.A., University of Denver

ROBERT D. YOUNGQUIST ..... Assistant Director, Area Vocational School
B.A., State University of Iowa; M.A., Western State College

LIBRARIANS

MARTIN A. WENGER ..... Head Librarian
B.A., University of Utah; M.L.S., University of Oklahoma

MARY ANNE BASINGER ..... Assistant Librarian
B.A., University of Colorado; M.A., University of Denver

ELIZABETH GOFF ..... Assistant Librarian
B.A., University of Colorado; M.A., University of Denver

PAULINE MESSENGER ..... Assistant Librarian
B.A., Bethany College; M.S., Kansas State Teachers College

RESIDENCE HALL DIRECTORS

MARJORIE CARNINE ..... Juniper Hall
NORMA DAVIS ..... Elm Hall
STEVE EDMONDS ..... Pinon Hall
FRANCES MARK ..... Juniper Hall
HAROLD RATZLAFF ..... Aspen Hall

INSTRUCTIONAL PERSONNEL

ROBERT ACKERMAN ..... Graphic Arts
B.S., West Virginia Tech

HERMAN C. ALLMARAS ..... Science, Mathematics
B.S., University of Wisconsin; M.S., Highlands University

CHARLES W. BAILEY ..... Mathematics
B.A., M.A., Colorado State College

VIRGINIA BEEMER ..... Child Care, Parent Education and Preschool
Kansas State University

JAMES C. BEMENT ..... Auto Mechanics and Technology
Blair Business College, Carter Carburetor School, Holley Field School, Chrysler Master Technician

WALTER F. BERGMAN ..... Physical Education
M.S., M.Ed., Colorado State University

RICHARD L. BERKEY ..... English
B.A., Fort Lewis College; M.A., Eastern New Mexico University

FRANCES BEST ..... English
B.A., William Jewell College; Certificate, Kansas City Business College; M.A., Adams State College

LISELOTTE H. BINSE, R.N. ..... Nursing
B.S., Fairleigh-Dickenson University

WALTER J. BIRKEDAHL ..... Music
B.Mus.Ed., M.Mus.Ed., University of Colorado

DARRELL C. BLACKBURN ..... Head, Department of Music
B.Mus.Ed., M.Mus.Ed., University of Colorado

ORVILLE L. BOGE ..... Chemistry
B.A., M.A., Colorado State College

HAROLD BOLLAN ..... Auto Body and Fender
B.S., Southern Utah State College

LORRAINE BOSCHI ..... English, Philosophy
B.A., Ohio State University; M.A., Ohio University

WILLIAM BRANTON ..... Welding
Certified Instructor, State Board for Community Colleges and Occupational Education

CLIFFORD C. BRITTON ..... Mathematics
B.A., Adams State College; M.A., San Diego State College

ANTHONY BRUNELLI ..... Physical Education
B.S., University of Northern Colorado

TENNIE ANN CAPPS ..... Business
B.S., Bus.Ed., M.Bus.Ed., University of Oklahoma

PERRY H. CARMICHAEL ..... Speech and Drama
B.A., M.A., Western State College

JAMES CARSTENS ..... Business
B.A., M.A., Western State College

JOHN V. CASSIDY ..... Business, Travel and Recreation Management
B.A., Colorado State College; M.Ed., Colorado State University

JOHN D. CHARLESWORTH ..... Auto Mechanics
Certified Instructor, State Board for Community Colleges and Occupational Education

J. LEON DAILY ..... Social Science
B.A., University of Maryland; M.A., Western State College

JAMES C. DAVIS ..... Chairman, Division of Mathematics and Engineering
B.A., M.A., Colorado State College

DALE L. DICKSON ..... Business
B.S., B.A., University of Denver; M.Ed., Colorado State University

EARLE W. ENGLAND ..... Aquatics, Physical Education
B.S., San Fernando Valley State College; M.S., Utah State University

RUTH ERICKSON, R.N. ..... Nursing
B.S., University of Colorado

PATRICIA FINK ..... Psychology
B.A., M.A., Colorado State College

RICHARD FROHOCK ..... English
B.A., William Jewell College; M.A., University of Oregon

VIRGINIA FULGHUM ..... English
B.A., M.A., Western State College

JOHN A. FYNN ..... Physics
B.S., M.S., University of Denver

MAXINE GABLEMAN ..... English
B.A., M.A., Western State College

ALFRED GOFFREDI ..... Chairman, Division of Business
B.A., M.A., Western State College

THOMAS D. GRAVES ..... Business
B.A., M.A., Adams State College

DONNA K. HAFNER ..... Mathematics
B.A., Colorado State College; M.A.T., Colorado State University

HELEN M. HANSEN ..... Business
B.A., Washington State University; M.A., University of Denver

JAMES T. HARPER ..... Social Science
B.A., Central Methodist College; M.A., J.D., University of Colorado

MARGARET HARPER ..... Business
B.S., Central Methodist College

LOIS HARSEN, R.N. ..... Nursing
B.S., Teachers College, Columbia University

EDWIN C. HAWKINS ..... Mathematics
B.A., M.A., Colorado State College

HOWARD H. HECK ..... Auto Mechanics
Certified Instructor, State Board for Community Colleges and Occupational Education

JOHN G. HENSON ..... Mathematics
B.S., Texas Technological College; M.A.T., Colorado State University

BILLY G. HIGHTOWER ..... Social Science
B.A., M.A., Western Kentucky University

CHRISTOPHER M. HOLLOWAY ..... Social Science
B.A., California State College; M.A., University of Colorado

EDWARD W. HORN ..... Engineering
B.A., M.A., Western State College

MADGE HUFFER ..... Speech, Debate
B.A., Sioux Falls College; M.A., Colorado State College

CHEO HUMPHRIES ..... Physical Education
B.S., Indiana University

BARRINGTON HUNT ..... Music
B.A., M.A., San Francisco State College

JAMES B. JOHNSON ..... Geology
B.A., University of Colorado; M.S., University of Utah

ROBERT L. JOHNSON ..... English
B.A., M.A., Western State College

LLOYD B. JONES ..... Chairman, Division of Social Science
B.A., M.A., Western State College

CARL M. KERNS ..... Mathematics and Engineering
B.A., Western State College; M.S., University of Oregon

HELEN KREY, R.N. ..... Nursing
Grace Hospital School of Nursing

DORIS R. LAY ..... English, Journalism, Student Publications
B.A., M.A., Western State College

MAURINE M. LEIGHTON ..... Home Economics
B.S., Oklahoma State University; M.H.E., Colorado State University

MILTON F. LENZ ..... Chemistry, Physics
B.A., Ohio Wesleyan University; M.S., Clarkson College of Technology

CALVIN L. LUKE ..... Mathematics
B.S., Brigham Young University; M.A.T., Colorado State University

DANIEL MacKENDRICK ..... English
B.A., M.A., Western State College

DONALD A. MacKENDRICK ..... Social Science
B.S., Colorado State University; M.A., University of Colorado

MELVIN McNEW ..... Chairman, Division of Physical Sciences
B.A., M.A., Western State College

WAYNE MEEKER ..... Sociology
B.A., M.A., Western State College

DONALD A. MEYERS ..... Art
B.F.A., University of Denver; M.A., Colorado State College

ETHEL MAE MOOR ..... Head, Department of English
B.S., Nebraska Wesleyan University; M.A., University of Nebraska

MELBA MORROW, M.T. ..... Health Programs
B.S., Education, Capital University; Registry of Medical Technologists

LOUIS G. MORTON ..... Social Science
B.S., Missouri University; M.A., Western State College

LOUISE G. MOSER, R.N. ..... Chairman, Division of Health Programs
Massachusetts General Hospital School of Nursing; B.A., Wittenberg University; M.N., University of Washington

LLOYD MOUNTAIN ..... Language
B.A., University of Colorado; M.A., Middlebury College

GEORGE MURRAY ..... Mathematics, Engineering
B.S., New Mexico School of Mines; M.A., Western State College

WAYNE NELSON ..... Chairman, Division of Physical Education
B.S., M.S., Utah State University

I. J. NICHOLSON ..... Social Science
B.A., University of Colorado; M.A., Western State College

IRWIN H. NUTTING ..... Welding
Certified Instructor, State Board for Community Colleges and Occupational Education

ROBERTA A. PECK ..... English
B.A., University of Colorado; M.A., University of Wyoming

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B.A., M.A., Northeast Missouri State Teachers College

MORTON PERRY ..... Social Science
B.S., Rutgers University; M.A., University of Wyoming

DEAN N. PHILLIPS ..... Mathematics, Engineering
B.S., Architectural Engineering, University of Colorado; B.S., Business, University of Colorado; M.S., Industrial Engineering, Stanford University

WILLIAM DAVID PILKENTON ..... Language
B.A., Marshall College; M.A., University of Michigan

WILLIAM E. PUTNAM ..... Physics, Chemistry
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B.S., Colorado State University; M.S., University of Illinois

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B.A., M.A., Western Michigan University

ELAINE E. RIPLEY ..... Biology
B.A., Yankton College; M.A., Western State College

JACK E. ROADIFER ..... Geology
B.S., M.S., South Dakota School of Mines; Ph.D., University of Arizona

DAN ROBERTS ..... Social Science
B.A., Colorado State College; M.A., Western State College

MAI ROBINSON ..... English
B.S., Minot State Teachers College

WILLIAM S. ROBINSON ..... Head, Department of Speech and Drama
B.A., Morris Harvey College; M.A., New York University

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B.S., M.B.Ed., University of Colorado

EARL ROYAL ..... Agriculture
B.S., Tarleton State College; M.Ed., Sam Houston State University

DENNIS A. SANDERS ..... Art
B.A. (History), B.A. (Art), Eastern Washington College; M.F.A., University of Oregon

PAUL G. SCHNEIDER ..... Music
B.A., M.A., Colorado State College

WILMA E. SCHUMANN, R.N. ..... Director, Practical Nursing
Boulder Sanitarium and Hospital; B.Ed., Colorado State University

VERNON P. SCOTT ..... Geology
B.S., Brigham Young University; M.A.T., Indiana University

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B.A., State University of Iowa; M.A., Western State College

PAULINE A. SHIOLAS ..... Psychology
B.A., M.A., Colorado State College

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B.A., M.A., Western State College

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B.S.N., University of Colorado; M.S., University of Indiana

ROBERT SOWADA ..... English, Language
B.A., M.A., University of Wyoming

JAMES SQUIRRELL ..... Business
B.A., Western State College; M.B.A., University of Denver

MARCELLA SULLIVAN ..... Home Economics
B.S., M.A., Colorado State University

HARRY A. TIEMANN, Jr. ..... Psychology
B.A., M.A., University of Colorado

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B.S., Colorado State University

MURIEL UEBLAUB ..... Business
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IDA WALDEN, R.N. ..... Nursing
B.S., University of Colorado

KENNETH L. WHITE ..... Chemistry
B.A., M.A., Western State College

EILEEN E. WILLIAMS, R.N. ..... Nursing
B.S., University of Denver; M.S., University of Colorado

DONALD H. YONKER ..... Biology
B.S., Western Michigan University; M.A., D.D.S., University of Michigan

JOAN YOUNG ..... Biology
B.A., University of Colorado; M.A., University of Kansas

ROBERT YOUNG ..... Science
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KERRY HENSON ..... Percussion
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TED LORTS ..... Voice
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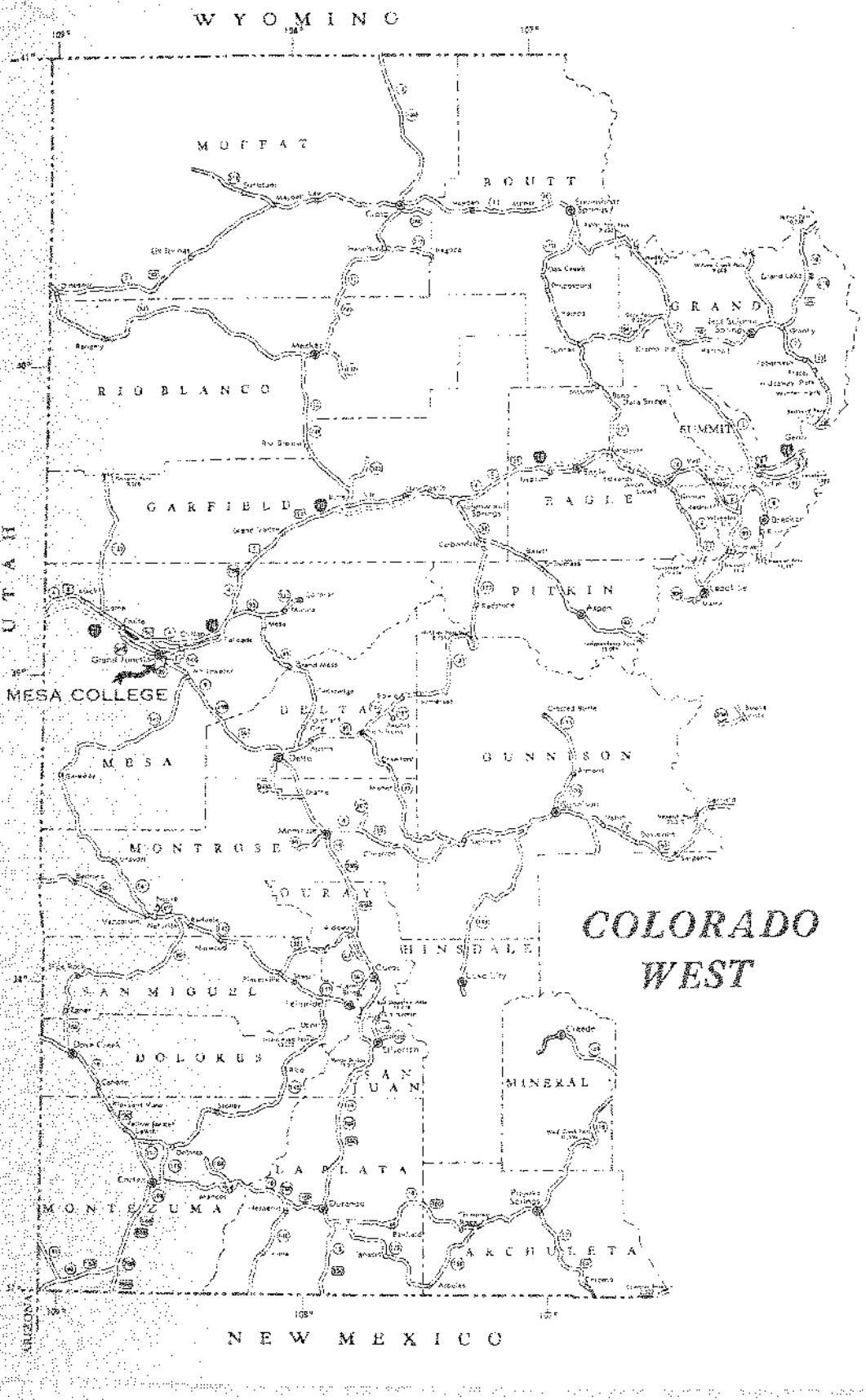
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