M. Bassett
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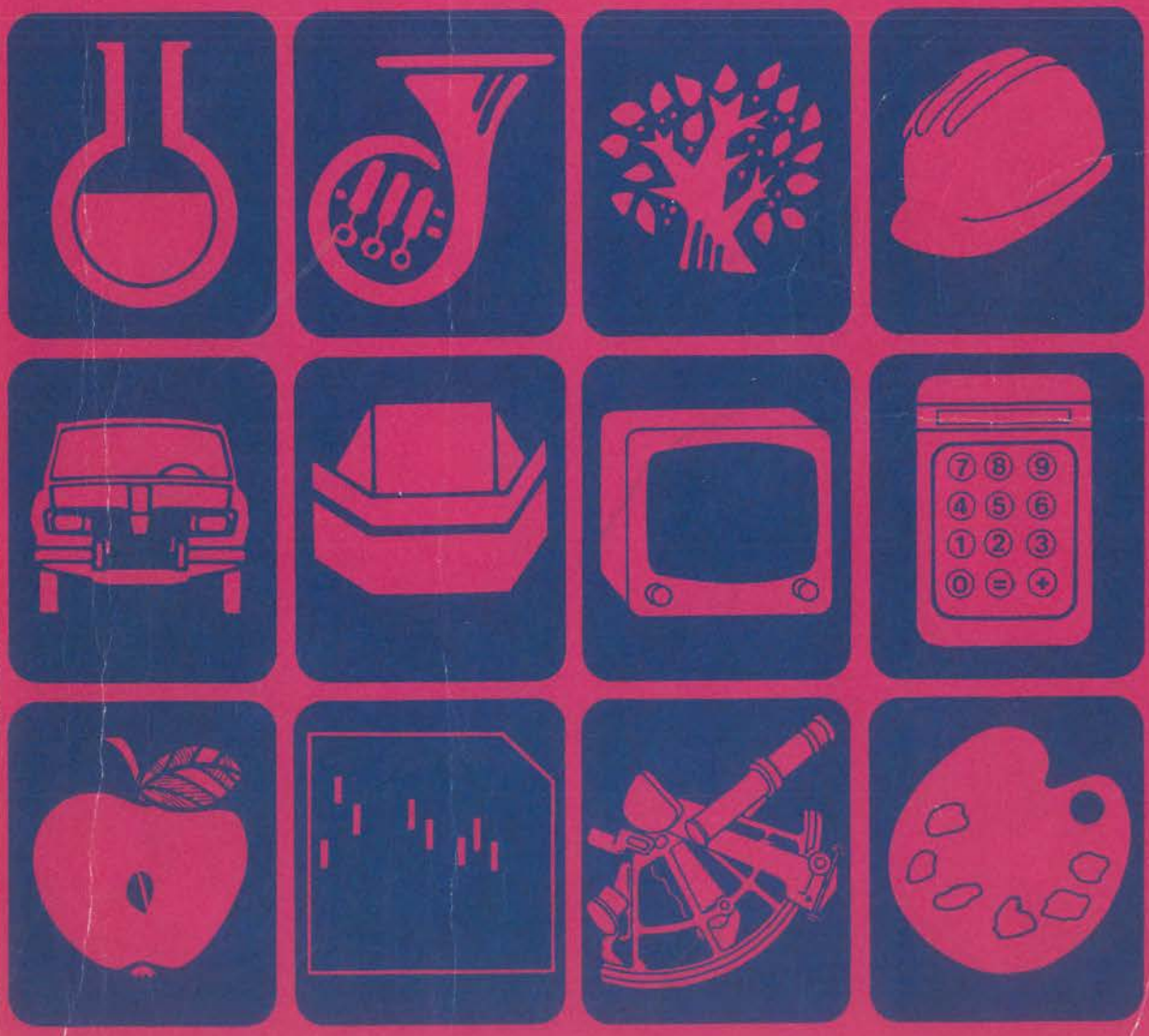
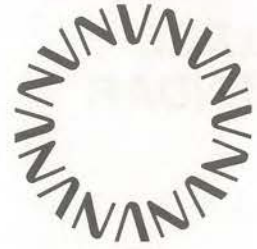
1977-78 Catalog

Northern Virginia Community College



NORTHERN VIRGINIA COMMUNITY COLLEGE



Alexandria Campus
3001 North Beauregard Street
Alexandria, Virginia 22311
Telephone: (703) 323-4285

Annandale Campus
8333 Little River Turnpike
Annandale, Virginia 22003
Telephone: (703) 323-3000

Loudoun Campus
1000 Harry Flood Byrd Highway
Sterling, Virginia 22170
Telephone: (703) 323-4561

Manassas Campus
6901 Sudley Road
Manassas, Virginia 22110
Telephone: (703) 368-0184

Woodbridge Campus
15200 Smoketown Road
Woodbridge, Virginia 22191
Telephone: (703) 670-2191

Extended Learning Institute
Northern Virginia Community College
8333 Little River Turnpike
Annandale, Virginia 22003
Telephone: (703) 323-3347

For Application Information by mail:
Northern Virginia Community College
P.O. Box 1285
N. Springfield, Virginia 22151

COLLEGE CALENDAR

Fall Quarter 1977

SEPTEMBER

			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER

				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Registration ..... September 22-23
Classes Begin ..... September 26
Veterans Day Holiday ..... October 24
Last Day to Withdraw Without Grade Penalty ..... November 4
Holiday for Students (Faculty In-service Day) ..... November 9
Thanksgiving Recess ..... November 24-27
Classes and Exams End ..... December 15

Winter Quarter 1978

JANUARY

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FEBRUARY

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MARCH

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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Registration ..... January 3-4
Classes Begin ..... January 6
Last Day to Apply for Graduation ..... January 31
Last Day to Withdraw Without Grade Penalty ..... February 16
Washington's Birthday Holiday ..... February 20
Classes and Exams End ..... March 23

Spring Quarter 1978

MARCH

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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APRIL

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30						

MAY

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28	29	30	31			

JUNE

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Registration ..... March 28-29
Classes Begin ..... March 31
Last Day to Withdraw Without Grade Penalty ..... May 11
Memorial Day Holiday ..... May 29
Classes and Exams End ..... June 15
Graduation ..... June 23

Summer Quarter 1978

JUNE

				1	2	3
4	5	6	7	8	9	10
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18	19	20	21	22	23	24
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JULY

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23	24	25	26	27	28	29
30	31					

AUGUST

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20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER

					1	2
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

(Full Ten Week Session)

Registration ..... June 16
Classes Begin ..... June 19
Independence Day Holiday ..... July 4
Last Day to Withdraw Without Grade Penalty ..... July 28
Classes and Exams End ..... September 1

(First Term of Two Five-Week Terms)
Double Class Periods

Registration ..... June 16
Classes Begin ..... June 19
Independence Day Holiday ..... July 4
Last Day to Withdraw Without Grade Penalty ..... July 7
Classes and Exams End ..... July 25

(Second Term of Two Five-Week Terms)

Registration ..... July 26
Classes Begin ..... July 27
Last Day to Withdraw Without Grade Penalty ..... August 16
Classes and Exams End ..... September 1

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NORTHERN VIRGINIA COMMUNITY COLLEGE

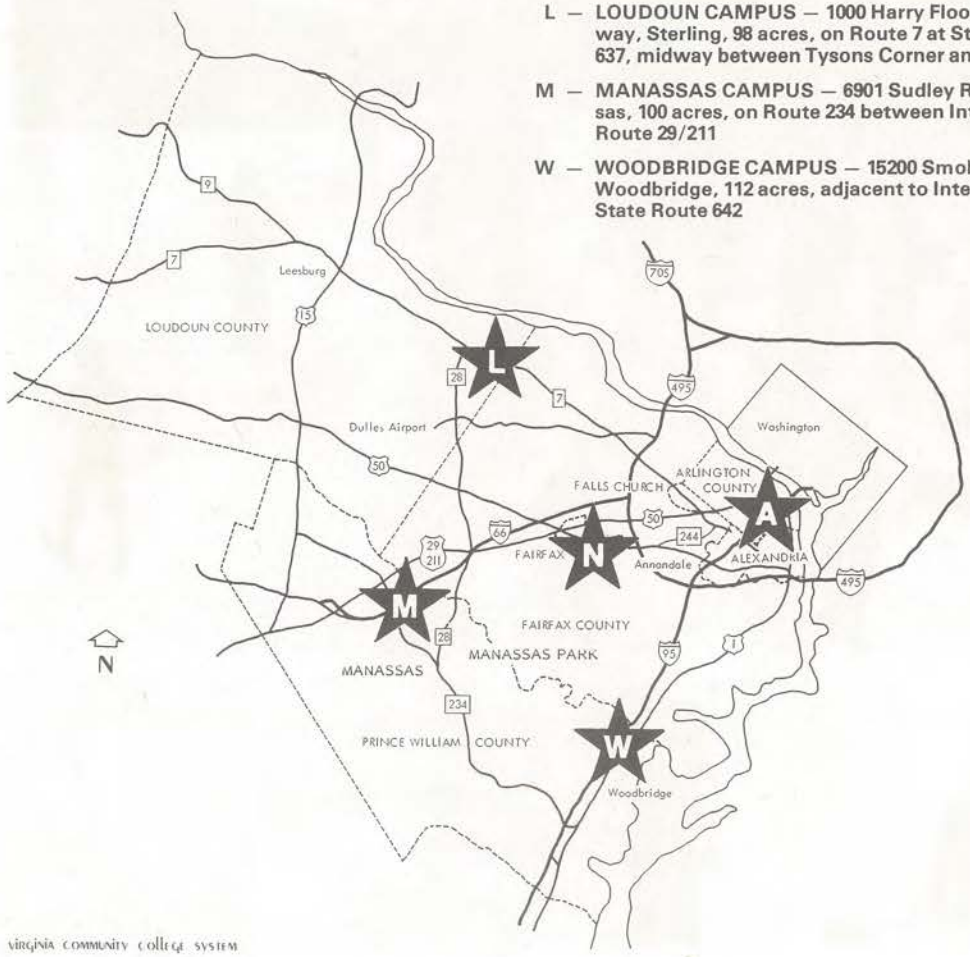
A — ALEXANDRIA CAMPUS — 3001 North Beauregard Street, Alexandria, 28 acres. Additional classrooms at 3443 South Carlin Springs Road, Bailey's Crossroads.

N — ANNANDALE CAMPUS — 8333 Little River Turnpike, Annandale, 78 acres.

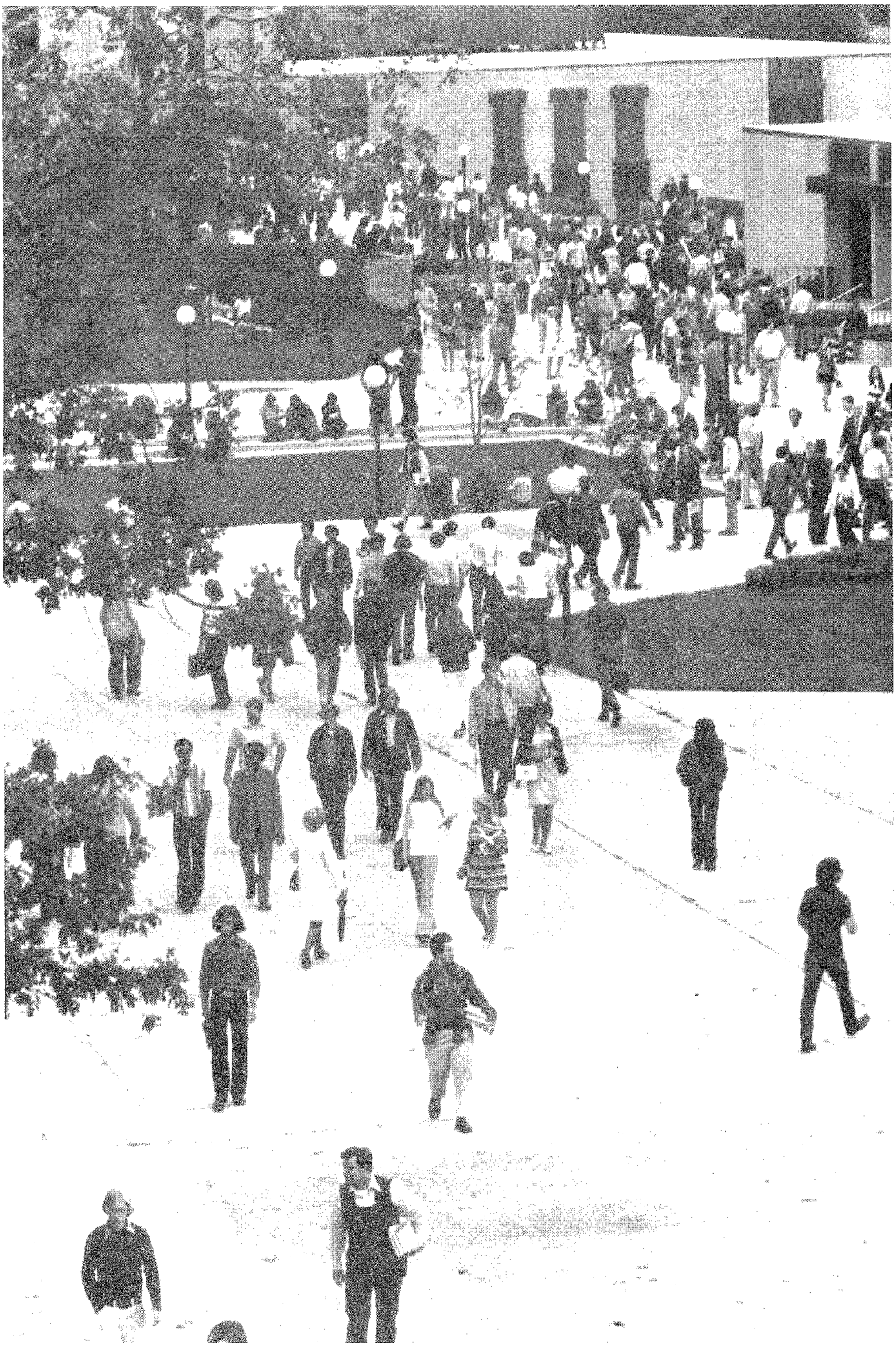
L — LOUDOUN CAMPUS — 1000 Harry Flood Byrd Highway, Sterling, 98 acres, on Route 7 at State Route 637, midway between Tysons Corner and Leesburg

M — MANASSAS CAMPUS — 6901 Sudley Road, Manassas, 100 acres, on Route 234 between Interstate 66 and Route 29/211

W — WOODBRIDGE CAMPUS — 15200 Smoketown Road, Woodbridge, 112 acres, adjacent to Interstate 95 at State Route 642



VIRGINIA COMMUNITY COLLEGE SYSTEM



GENERAL INFORMATION

THE COLLEGE

The Northern Virginia Community College is part of a state-wide system of community colleges in Virginia. The programs and services are specifically designed to help meet the needs for education and training that exist in Northern Virginia. The College serves the counties of Arlington, Fairfax, Loudoun and Prince William; and the cities of Alexandria, Falls Church, Fairfax, Manassas Park and Manassas.

The governing board for all of the 23 colleges in the Virginia Community College System is the State Board for Community Colleges. The members of this Board are appointed by the Governor of the State of Virginia. A Northern Virginia Community College Board provides local leadership as well as approval of items to be recommended to the State Board for consideration. Members of the NVCC Board are appointed by the nine political subdivisions served by the College. Each county and city has one representative on the Board with the exception of Fairfax County with three representatives because of the larger population in the county.

Members of the community also serve on curriculum advisory committees for all of the occupational and technical programs offered at the College. Members of each committee are selected because their occupational field is directly related to the career objectives of the program at NVCC. These committees give the guidance necessary to insure that courses and programs provide instruction in the skills needed for the types of jobs that are available in Northern Virginia.

The College also offers freshman and sophomore courses which can lead to a bachelor's degree program. After completion of the Associate in Arts or Associate in Science degree at NVCC, a student may transfer these courses to a four-year institution.

Non-credit courses are offered as a community service. They are self-supporting in that tuition fees charged for these courses are used to pay administrative costs, instructors' salaries and other related expenses. State appropriated funds are not used for community service courses.

The Maintenance and Operation budget for the College is provided through appropriations made by the Virginia General Assembly. The nine cooperating jurisdictions in the Northern Virginia area provide local funding for the purchase of sites and site development which includes clearing of the land, building roads, parking lots, landscaping, outdoor lighting and public utilities up to the point where they connect with the building. The General Assembly approves capital outlay funding for construction and the initial equipment for buildings.

There are five NVCC campuses conveniently located throughout Northern Virginia. Many of the programs offered by the College are available on any of the five campuses. Certain highly specialized programs are available only on one or two campuses.

Some students may find it inconvenient or impossible to attend classes on a regular basis at one of the campuses. An Extended Learning Institute has been established by NVCC so that students can study at home. Course materials are available by mail, through courses offered on local radio and television programs, or by use of cassette tapes.

LOCATION AND FACILITIES

The multi-campus plan for the College consists of the Alexandria, Annandale, Loudoun, Manassas and Woodbridge campuses, plus the Extended Learning Institute. Each campus has at least the first phase of construction completed. Complete student services are provided on each campus. A Provost is in charge of the campus.

The Alexandria campus is located at 3001 N. Beauregard Street, Alexandria. Student services, general classrooms, laboratories, studios and a large teaching auditorium are contained in a single four-story building. Faculty and administrative offices are also included along with a lounge and snack area and the Learning Resource Center which includes the library.

The Annandale campus is located at 8333 Little River Turnpike, Annandale. The campus is on Route 236 west of Annandale about one-half mile outside of the beltway, Interstate Route 495. This campus has a Classroom building, Laboratory building, Library/Administration building, Food Services building, TV/Technical building and a Nurse Training building.

The Loudoun campus is located at 1000 Harry Flood Byrd Highway at Sterling. The 98 acre site is at the intersection of Route 7 and State Route 637 in Loudoun County 13 miles west of Tysons Corner and 13 miles east of Leesburg. There are three buildings plus a greenhouse/laboratory. The main building houses all of the student services, administration, library, faculty offices and most of the classrooms. There is an Animal Science building, and the other building is primarily a laboratory building.

The Manassas campus consists of over 100 acres at 6901 Sudley Road in Manassas. The campus is located one-third mile North of Interstate Route 66 on State Route 234. The main building on campus houses the student services, classrooms, laboratories, faculty and administrative offices and the library facilities. A Power Technology building provides laboratories for some of the highly specialized programs. A temporary building has been designed to provide art laboratories.

The Woodbridge campus is adjacent to Interstate Route 95 on State Route 642 in Prince William County. The 112 acre site is at 15200 Smoketown

Road in Woodbridge. All of the classrooms, laboratories and complete student services are in a single building which faces a five acre lake.

The Extended Learning Institute has no classrooms or laboratories since students study at home through courses offered on television, radio or through the mail. Seminars and examinations are usually given on the campus that is most convenient for the student.

College-wide services are located within the facilities on the Annandale campus. These include the College President, Instructional Services, Student Services, Financial and Administrative Services, Public Relations, Personnel, Accounting, College Records, Affirmative Action and Minority Affairs, Institutional Research, Facilities Planning and Development, Veterans Programs and others. The offices provide services throughout the five campuses and the Extended Learning Institute. They are housed on the Annandale campus because of its central location in the Northern Virginia area.

HISTORY OF THE COLLEGE

The College was originally established under the name of the Northern Virginia Technical College. This was the result of legislation by the 1964 Virginia General Assembly. A state-wide plan called for 22 technical colleges to be located throughout the Commonwealth of Virginia. Each college was designed to serve a specific geographic area as the state was divided into 22 regions.

In early 1965 the College was approved by the State Board for Technical Education. A warehouse at Bailey's Crossroads was renovated to provide the necessary classrooms, laboratories, library and office space. The College was the first technical college to open in the Virginia System on November 16, 1965. The initial enrollment was 761 students with a faculty and staff of 46. Robert W. McKee was appointed as the first President of the College in the summer of 1965.

The 1966 Virginia General Assembly enacted legislation which changed the Virginia Technical College System to the Virginia Community College System. The name of the College was changed to the Northern Virginia Community College. College transfer programs were added to the existing occupational and technical programs to expand the role of the College to provide a greater opportunity for Virginians to take advantage of the high quality but low cost education.

After a very successful first year of operation, the College experienced an enrollment increase to 2,226 students in the fall of 1966. This trend has continued to the point where NVCC now has the largest enrollment of any two-year or four-year institution in Virginia.

The first permanent building for the College was constructed and opened on the Annandale campus in 1967. The site of 78 acres had been purchased by the NVCC Board in 1966. Funds for the purchase of sites are provided by the cooperating jurisdictions within the Northern Virginia region served by the College. Sites of approximately 100 acres each were purchased in 1967 for the Loudoun, Manassas and Woodbridge campuses. A 28 acre site for the Alexandria campus was purchased in 1969.

Dr. Richard J. Ernst became the second President of the College on September 16, 1968.

Three additional buildings were opened on the Annandale campus in early 1969. Normally, state funds are used for construction; however, the seven local jurisdictions provided the basic funding along with some matching federal grants to construct the Library/Administration building, Food Services building, and general Classroom building. This campus also completed a TV/Technical building in 1970 using only local funding and a Nurse Training building in 1972.

In the fall of 1972, the College began offering evening courses through the Loudoun, Manassas and Woodbridge campuses. The three new campuses opened with administrative offices located in temporary and rented facilities. Classrooms for the evening courses were arranged through local high schools, churches, military installations and other community locations.

Phase I of construction for the Alexandria campus was opened in the spring of 1973. Only the automotive and engineering programs remained at Bailey's Crossroads as the campus moved on to the new site. The Loudoun and Manassas campuses completed Phase I of construction and opened on new campuses with full day and evening programs in the fall of 1974. Initial construction for Phase I of the Woodbridge campus was opened for fall quarter 1975.

Phase I of construction for the Loudoun, Manassas and Woodbridge campuses was planned to take care of 800 students. The enrollment for each campus is almost three times as much as the campus was planned for. Because of this, the College has continued to offer courses at off-campus locations throughout Northern Virginia.

The Extended Learning Institute of the College began offering courses in January 1975. More than 4,500 students enrolled for courses during the first 18 months of operation. The popularity of ELI courses continues for those students who cannot attend regular classes on the campus or prefer to study at a time and place of their own choosing.

During the 1975-76 fiscal year, the College served 44,379 different students in credit courses. In addition, 12,836 students registered for non-credit, community service courses during the fiscal year. A total of 18,317 members of the community made use of College facilities for meetings and other activities. The fall quarter 1976 enrollment was 26,557 full and part-time students.

PURPOSE

Northern Virginia Community College is dedicated to the belief that each individual should be given a

continuing opportunity for the development and extension of his skills and knowledge along with an opportunity to increase in awareness of his role in and responsibility toward society. The College, operating under an open admissions policy, accepts any person who has a high school diploma or the equivalent, or is at least 18 years of age, and in any case, is able to benefit from a program of instruction. The College is devoted to serving the educational needs of its community and assumes a responsibility for helping meet the requirements for trained manpower in its region through a cooperative effort with local industry, business, professions, and government.

Educational opportunities are provided for post high school age youth and adults. These opportunities include high-quality instructional programs at the associate degree level, in occupational and technical programs designed to develop technicians, semi-professional workers and skilled craftsmen, as well as programs at the developmental level. A strong counseling program, including a number of other comprehensive student services, is also provided to help each student make sound decisions regarding his occupational, educational, and personal goals and objectives. These services include: pre-college and freshman orientation, counseling, job placement, financial aid, student health service, psychological service, veterans affairs, and student activities.

PROGRAMS

Northern Virginia Community College is a comprehensive institution of higher education, offering programs of instruction generally extending not more than two years beyond the high school level.

1. *Occupational-Technical Education.* The occupational and technical education programs are designed to meet the increasing demand for technicians, semi-professional workers and skilled craftsmen for employment in industry, business, the professions, and government. The curriculums are planned primarily to meet the needs for workers in the region being served by the College.
2. *College Transfer Education.* The college transfer program includes college freshman and sophomore courses in arts and sciences and pre-professional programs meeting standards acceptable for transfer to baccalaureate degree programs in four-year colleges and universities.
3. *General Education.* The programs in general education encompass the common knowledge, skills, and attitudes needed by each individual to be effective as a person, a worker, a consumer and a citizen.
4. *Continuing Adult Education.* These programs are offered to enable the adults in the region to continue their learning. This work includes both degree credit and non-degree credit work offered during the day and evening hours.
5. *Special Training Programs.* Special training may be provided where specific job opportunities are available for new and expanding industries. This special training shall be considered with Virginia's economic expansion efforts and with the needs of employers.
6. *Developmental Programs.* Developmental programs are offered to help prepare individuals for admission to the college transfer programs and the occupational/technical programs in the Community College. These programs are designed to help develop the basic skills and understanding necessary to succeed in other programs of the Community College.
7. *Specialized Regional and Community Services.* The facilities and personnel of the College are available to provide specialized services to help meet the cultural and educational needs of the region served by the Community College. This service includes the non-classroom and non-credit programs, cultural events, workshops, meetings, lectures, conferences, seminars, and special community projects which are designed to provide needed cultural and educational opportunities for the citizens of the region.

ACCREDITATION AND RECOGNITION

The College, a division of the Virginia Community College System, is approved by the State Board for Community Colleges in Virginia. The associate degree programs of the College have also been approved by the State Council of Higher Education for Virginia. The College is accredited by the Southern Association of Colleges and Schools.

EXTENDED LEARNING INSTITUTE

The Extended Learning Institute of the Northern Virginia Community College represents a new concept in higher education. The courses offered by ELI are designed to provide learning opportunities to those who may not be able to take advantage of classroom-based courses.

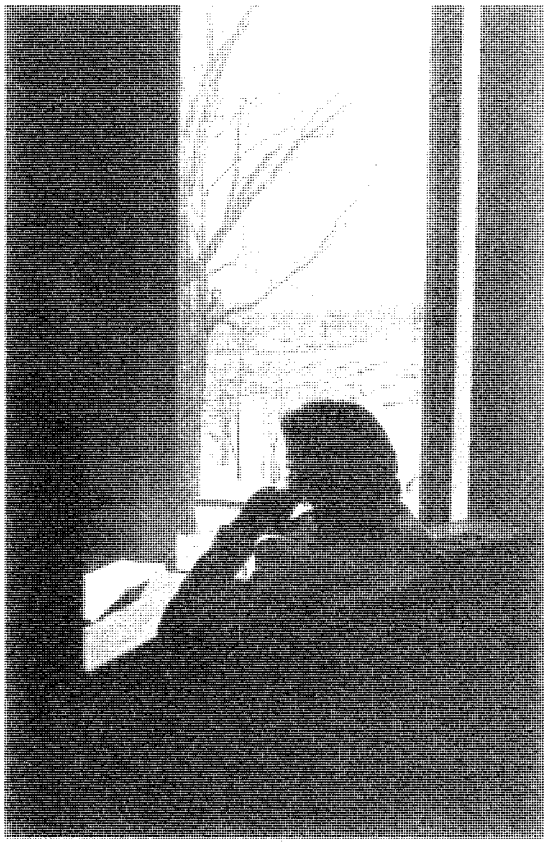
The basic philosophy of ELI is that the services of the College should be made available to more people, who, although anxious to learn find it difficult or impossible to participate in the learning process carried out by the classroom-based programs. Students enrolled in ELI use time flexible and space free programs that are student guided. Students may receive lectures or course materials by viewing home television, listening to the radio, listening to audio tape cassettes, reading newspapers or by throughly programmed print materials. Students receive faculty assistance via telephone, mail or office conferences. Required on-campus visits are limited to examinations.

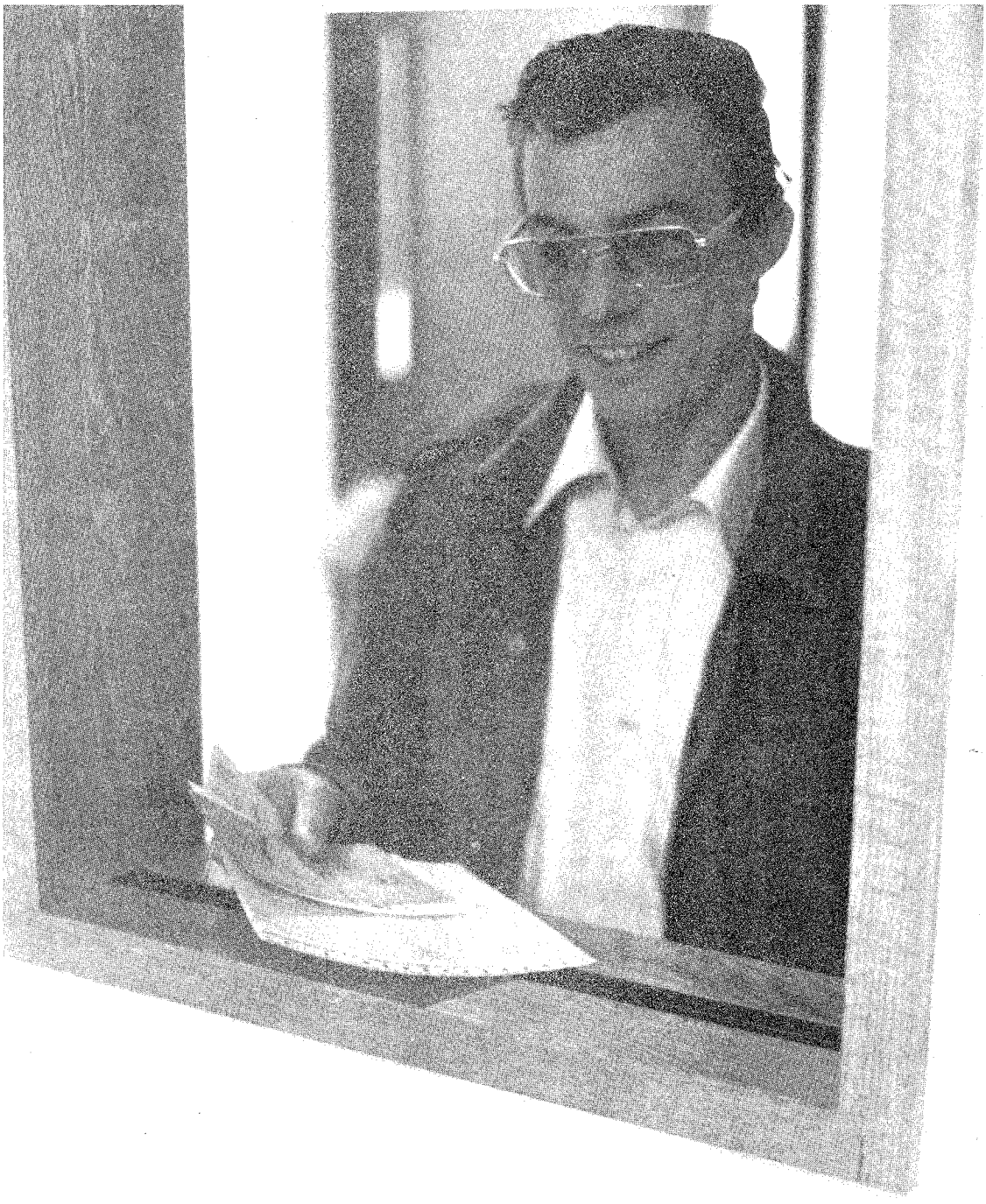
Registration for course offerings is available on a continuous basis and many courses start at any time.

Students in the ELI courses will select the campus most convenient to them for the few on-campus activities connected with the ELI courses. ELI also has educational support services geared directly for its style of instruction. For further information call or write:

Extended Learning Institute

Northern Virginia Community College
8333 Little River Turnpike
Annandale, Virginia 22003
Telephone: (703) 323-3347





ADMINISTRATIVE INFORMATION

ADMISSIONS REQUIREMENTS

General Admission to the College

Any person who has a high school diploma or the equivalent, or is at least 18 years of age, and in any case is able to benefit from a program of instruction at Northern Virginia Community College, may be admitted to the College as a regular, special or unclassified student when the following items have been received by the Office of Admissions on his home campus.

For all regular and special students, the following items are required:

1. A completed "Application for Admission as a Regular Student."
2. A $5 application fee (non-refundable unless the program or course is not offered.)
3. Official transcripts from all high schools, colleges, and universities attended.
4. A completed Northern Virginia Community College Health Form.

For all unclassified students, the following items are required:

1. A completed official application.
2. A $5 application fee (non-refundable unless the program or course is not offered). NOTE: Please direct all inquiries concerning applications to the College to: Northern Virginia Community College, Post Office Box 1285, N. Springfield, Virginia 22151.

The College participates in an Early Admissions Program whereby a person who has not earned a high school diploma or its equivalent may attend the College full time and fulfill high school graduation requirements. Courses taken to fulfill high school graduation requirements must receive prior written approval of the high school. Not more than two units may be applied toward high school graduation in this way. Students entering under the Early Admissions Program will be classified as Special Students.

The College also admits currently enrolled high school students on a part-time basis. Such concurrent enrollment requires written approval of the high school principal and completion of admission requirements including a high school transcript showing all study completed to date. Students in the concurrent enrollment program are classified as Special Students.

The College reserves the right to evaluate special cases and to refuse admission to applicants when it is considered to be in the best interest of the College. A student may be denied admission to the college if there is sufficient reason to believe that he presents a danger to himself or to other students and/or faculty.

Applicants will be accepted on a first-come, first-served basis subject to the quotas established for each curriculum. It is important that applications be made early if entrance to the desired program is to be achieved.

To insure consideration for admission or readmission to a desired degree program, an applicant must have submitted an application with all necessary supporting documents to the College at least 30 days prior to registration for the quarter in which admission is being sought. All students not admitted to a degree or certificate program shall be considered unclassified students.

Applications for admission may be either mailed to the College Applications Service Office or submitted at the campus during registration. Mail-in applications should be received at the College at least two weeks prior to registration to allow for processing and return response.

General admission to the College does not imply admission to a specific curriculum. A person who has been accepted by the College, before becoming a "regular" student, will be required to meet with one of the College Counselors (a) to discuss the applicant's educational interests, (b) to determine what additional tests he may need, and (c) to plan his application for admission to a specific curriculum or program at the College. He will also be required to submit a health certificate form (forms furnished by the College) and any additional information required by the College for admission to a specified program or curriculum.

The College does not discriminate on the grounds of race, color, age, sex, or national origin and is in compliance with the Civil Rights Act of 1964.

The act of enrolling as a student is an acceptance of the rules and regulations of the College. Any violation may be subject to appropriate institutional action.

Persons wishing to apply for the non-credit community service programs should contact the Office of Continuing Education on any campus for additional information.

Admission to Specific Curricula

In addition to the general admission requirements listed above, specific requirements are usually prescribed for each curriculum of the College. Among the items generally considered in determining the eligibility of a student for admission to a curriculum in the College are his educational and occupational experiences and other reasonable standards to insure that the student possesses the potential to meet program requirements.

The specific requirements for each curriculum in the College are listed in the Curricula of Study

section of the College Catalog. Persons who do not meet the requirements for a specific curriculum or course may be eligible to enter the curriculum or course after they have completed preparatory course work.

Persons applying to enter one of the associate degree programs (Associate in Science, Associate in Arts, or Associate in Applied Science) shall be high school graduates or the equivalent or have completed an approved developmental program.

High School Transcript Requirement

A. Students who have been out of high school for ten years or more will not be required routinely to submit high school transcripts for admission into curricular programs of the college. Exceptions to this will be made in admission to the Nursing, Medical Records Technology, Medical Laboratory Technology, Dental Laboratory Technology, Dental Assisting, Physical Therapist Assistant and Respiratory Therapy curricula where high school transcripts will be required to verify course completion and academic achievement in accordance with special admissions requirements in those programs.

B. Students having successfully earned at least twenty semester or thirty quarter hour credits at another accredited college or university will not be required to submit high school transcripts for admission to a curricular program of the college except when applying for admission to the Nursing, Medical Records Technology, Medical Laboratory Technology, Dental Laboratory Technology, Dental Assisting, Physical Therapist Assistant and Respiratory Therapy curricula.

C. Southeast Asian, Cuban, and other refugees will not be required to submit high school transcripts but will be admitted to the college and placed in curricular programs based on TOEFL test requirements and English and Math placement test scores respectively.

Special Admission Requirements for International Students

International Students will not be admitted on a temporary basis. They must complete all general and special requirements for admission. International students who are present in the United States on a temporary visa are considered non-residents (domiciliaries) for purposes of tuition payments. Length of stay, payments of taxes, ownership of property, etc., in themselves *do not* qualify them for the status of *legal resident.*

Students who acquired a student visa through acceptance by another school or college will not be considered until they have successfully completed at least one term's work and have secured a written release from the original institution. Students for whom an I-20 form has been submitted must maintain their status as full-time students. The College will not approve nor recommend employment of non-immigrant aliens who are students (except after at least one quarter of attendance and with the specific written approval of the U.S. Office of Immigration and naturalization).

Applicants whose native language is other than English are required to take the "Test of English as a Foreign Language" (TOEFL). The applicant is responsible for making early arrangements for taking the test and should address inquiries to: TOEFL Educational Testing Service, Box 899, Princeton, New Jersey 08540, U.S.A. The Bulletin of Information, obtainable without charge, contains a description of the test as well as rules regarding application, fees, reports, and the conduct of the test, lists of examination centers, examination dates, and an application blank. On the application for the test, the student should specify that the scores be sent to Northern Virginia Community College, Post Office Box 1285, North Springfield, Virginia 22151. The results of the TOEFL should be received at NVCC one month in advance of the term for which the applicant seeks admission.

International students with TOEFL scores of 550 or greater will generally be admitted to regular credit courses with no special restrictions. Applicants with scores in the range of 500-549 may be admitted with some limitations on their academic load. Applicants with scores below 500 will not be admitted but will be encouraged to pursue language training and to retake the TOEFL exam after that training.

Residence Requirements

Applicants will be required to submit a residence affidavit to determine state residency eligibility for tuition purposes. See the section on tuition in this catalog. The Application Form contains an affidavit which must be completed by applicants or their parents or guardians. Applicants and parents/guardians are responsible for the complete accuracy of their affidavit. The right to recoup deficiency charges is reserved. If there is any question as to the status of an individual, the applicant should contact the office of Admissions and Records for clarification.

When enrollments must be limited for any curriculum or course, first priority must be given to all qualified students who are legal residents of the political subdivisions supporting the College as listed under General Information, provided such students apply for admission to the curriculum a reasonable length of time prior to registration. The priority list is as follows: (1) residents of the political subdivisions supporting the College, (2) other Virginia residents, (3) out-of-state and International students.

Students Transferring from Other Colleges

Usually, a student from another college who is eligible for re-entrance at the last college shall also

be eligible for admission to the Community College.

The application fee is waived only for those transferring from another Virginia Community College. Students transferring from other Virginia Community Colleges simply have their total transcript and GPA transferred to NVCC.

It is the role of the Community College to help each student succeed in a program from which he can benefit. Early application and submission of all transcripts is required.

Each student transferring from another college should consult the Admissions and Records Office at the Community College for an assessment of credits. Generally, no credit will be given for subjects with a grade lower than "C." A transfer student may be advised to repeat courses if it is clearly to his advantage to do so in order to make satisfactory progress in his curriculum.

Such an evaluation (of credits that a student has earned at other institutions) will be made during the admission process after all of the official documents have been received. When the course contains similar or like content and credit, the course will transfer as the equivalent of this institution's course. When the content is unlike any course offered at Northern Virginia Community College, elective credit may be granted. The division in which the student is enrolled will then determine if and how the evaluated transfer credit may be used in meeting specific degree requirements. Students taking credit courses at other institutions for transfer to Northern Virginia Community College must receive prior written approval from the chairman of the academic division from which they expect to receive their degree.

Credit from non-regionally accredited colleges and universities may be transferred according to the recommendations in the current issue of the Directory published by the U.S. Dept. of Health, Education and Welfare or in the current issue of the AACRAO Guide, and/or if the colleges and universities have been approved by their state accrediting agencies.

Credit may be allowed for military service schools if this credit is recommended in *A Guide to the Evaluation of Educational Experiences in the Armed Services,* and if work is applicable to the program being pursued.

Advanced Placement

Northern Virginia Community College subscribes to the philosophy that the placement function of the College includes helping the student to accumulate his past experiences, to identify where he is in his educational development, and to move on toward his goals at the most efficient and rapid rate possible. Advanced standing is the administrative placement of a student beyond the basic or first course(s) in a curriculum, allowing college credit for subject matter and/or other appropriate training, upon the submission of evidence showing previous academic study, examination, or occupational experience.

Advanced standing may be granted students who successfully complete examinations in any of the following programs.

1. College Level Examination Program (CLEP) Examinations from Educational Testing Service (ETS) for Advanced Standing.
   The College Level Examination Program from the Educational Testing Service has been approved in five basic liberal arts areas and in specific Subject Examination areas, depending on the score attained. Students desiring to participate in the CLEP Program may contact the Counseling Office at their respective campuses for information and applications.

2. Northern Virginia Community College will award specific course credit for acceptable scores on USAFI (United States Armed Forces Institute) tests. As USAFI is no longer operative, arrangements have been made for the Defense Activity for Non-Traditional Education Support (DANTES) to administer and store subject standardized tests and Graduate Equivalency Diplomas (GEDs) for military personnel. To obtain results of USAFI courses and high school and college-level GEDs, follow the appropriate instruction:

a. For military personnel tested through USAFI prior to June 1, 1974, write to DANTES Contract Representative, (Transcripts) 2318 South Park Street, Madison, Wisconsin 53713.

b. The scores of military personnel tested overseas after June 1, 1974, may be obtained by communicating with the G.E.D. Testing Service, Transcripts-M, One Dupont Circle, N.W., Washington, D.C. 20036.

c. Military personnel tested in the U.S. at official G.E.D. Centers or by state departments of education must request transcripts directly from the state department of education or official G.E.D. Center concerned.

3. Advanced Placement Program for Advanced Standing.
   Specific college course credits will be granted for scores of 3, 4, or 5 on the Advanced Placement Examinations of the College Entrance Examination Board. For evaluation students must have official AP Score Reports forwarded from ETS to NVCC for inclusion in the permanent record in the Admission and Records Office of their home Campus.

4. Locally Constructed Assessment By Local Examination (ABLE) Examinations for Advanced Standing.
   Tests not available from outside sources such as the CLEP will be available for a considerable number of NVCC courses through ABLE exams. The College will grant specific course credit for acceptable performance on ABLE

examinations. A fee of $5.00 per course is charged for each ABLE exam attempted.

Waiver of Requirements

Veterans may receive a waiver for Physical Education upon submission of a discharge certificate; however, no credit is granted for this waiver. Other credits should be substituted to meet the total requirements of the specific curriculum. Application for waiver should be made in the first quarter of enrollment.

Auditing a Course

Students desiring to attend a course without taking examinations or receiving credit for the course, may do so by registering to audit that course. Students desiring to audit a course will register in the regular manner and pay the regular tuition. Audited courses carry no credit. Students desiring to change status in a course from audit to credit must complete the change during the first week of class. Changes from credit to audit must be made by the last day for students to withdraw from a class without penalty (first six weeks of classes). Permission of the instructor and the Division Chairman is required to audit a course. The student should contact Admissions and Records for instructions.

Admission of Senior Citizens

Under the Virginia "Senior Citizens Higher Education Act of 1974," amended in 1976, anyone who is over 62 years of age, who is a legal resident of Virginia, and whose taxable income does not exceed $5000 is eligible to enroll in credit courses at the College without charge. Those senior citizens whose income exceeds $5000 may audit a maximum of 3 courses (credit and/or non-credit) per quarter without charge. Senior citizens must submit an application and be admitted to the College. Under the law, they will be accommodated on a space available basis after all tuition paying students have registered.

Continuous Registration for E.L.I.

The Extended Learning Institute offers both fixed-time and continuous registration courses. Therefore, a student may start many E.L.I. courses at any time. Registration may take place on a campus or by mail through E.L.I. Call the Extended Learning Institute for complete registration (703) 323-3347.

CLASSIFICATION OF STUDENTS

Classification of Students by Home Campus

All students are required to select a home campus (Alexandria, Annandale, Loudoun, Manassas, or Woodbridge) at the time of application. A change in a student's home campus classification should be made as soon as possible before the beginning of the preregistration period.

All students records will be maintained at the home campus of the student. All actions, such as registration, dropping of courses, shifting from credit to audit, withdrawal, transcript request, etc., must be accomplished at the home campus.

A. Students not currently enrolled in classes may change campus by going to the campus of their choice to register.

B. Students enrolled in classes for the current quarter must request a change of campus not less than five (5) working days prior to the beginning of pre-registration. This restriction is in effect through the last day of add/drop.

Students are permitted by cross-campus registration to take classes at any of the five campuses.

ALL STUDENTS ARE CLASSIFIED ACCORDING TO THE FOLLOWING CATEGORIES:

Regular Student

A regular student is one who is a high school graduate or GED recipient and who is enrolled in a curriculum at the College. A student is designated as a regular student once his file in the Admissions Office contains all of the information required for general admission to the College. A regular student is a full-time or part-time student working toward completion of an associate degree, certificate, or developmental program, or for transfer to a baccalaureate degree granting institution. Thus, the regular student's admission will normally follow a counseling interview and will be substantiated by a written statement specifying the curriculum to which he is admitted and any developmental work that he must accomplish.

Special Student

A special student is one who has neither graduated from high school nor received a GED but is enrolled in a curriculum at the College.

Unclassified Student

An unclassified student is one who is permitted to register under special conditions including the following:

1. A part-time or full-time student not enrolled in an associate degree, or certificate program who may be taking a course for credit (such students may later apply to the College for admission to a curriculum as a regular student);
2. A part-time student taking a credit course(s) as an audit.
3. A person who has not yet fulfilled all of the

requirements as a regular student but who is admitted under special consideration by the Admissions Committee of the College. It is expected that such persons would fulfill all requirements prior to the mid term of the quarter;

4. A high school student who with the written permission of his high school principal is concurrently enrolled in a college course.

Full-time Student

A student is considered a full-time student if he is carrying 12 or more credits of course work. (Note: The Veterans Administration considers 12 credit hours as full-time except for course work in certificate programs.)

Part-time Student

A student is considered a part-time student if he is carrying less than 12 credits of course work.

Freshman

A student is classified as a freshman until he has completed 45 credits of work.

Sophomore

A student is considered a sophomore after he has completed 45 or more credits of course work. Transferred credits are included providing they apply toward meeting the requirements of the student's curriculum.

Reapplicant

A student who has been accepted for admission but has not enrolled for one year must reapply by submitting again the standard application for admission form. In this way, the College is assured of current student information, such as address and telephone number. A second application fee is not required. All fees and tuition are approved by the State Board for community colleges which has the authority to change any or all without prior notice.

Student Identification Number

The College requests a student's social security number at the time of application for admission. If a student is unable or unwilling to provide this number, a substitute identification number will be assigned. The social security number identification system provides for a consistent and efficient means of student record identification. This identification number is used for grade reporting, class rolls and other types of record keeping

EXPENSES

Application Fee

An application fee of $5 must accompany the application for admission to the College. This is a one-time charge. No additional application fee shall be charged. This fee is not applicable to tuition, nor refundable unless the program or course is not offered.

Tuition

Full-time Student	(12 or more credits):
Virginia Domicile	$100.00 per quarter
Out-of-State	$335.00 per quarter
Part-time Student	(Less than 12 credits):
Virginia Domicile	$8.50 per credit (or equivalent)
Out-of-State	$28.00 per credit (or equivalent)

TUITION IS DUE AND PAYABLE AT THE TIME OF REGISTRATION EACH QUARTER.

Payment of tuition also enables the student to use the library, bookstore, student lounge, and other facilities of the College except parking. There are no special laboratory or library fees, but students are expected to pay charges for any school property (such as laboratory or shop equipment, supplies, library books and materials) that they damage or lose.

Additional charges for non-College support services are necessary for a few specified courses in music, physical education, and aviation. These costs are paid by the student directly to the support service facility.

Entitlement to In-State Tuition Fees

In order to qualify for in-state tuition rates, a person must be a legal resident and domiciliary of the State of Virginia. This means that a person must actually have lived as a legal resident in Virginia for one full year (12 months) immediately prior to the beginning date of the school quarter for which he seeks acceptance and that during that year, he must have had a continuing intention to remain permanently and indefinitely in Virginia.

It will be presumed that people falling within the following categories do not have the requisite intent to be a Virginia domiciliary: holders of temporary visas, persons who by law must maintain their domicile or legal residence in another state, persons who have by their actions selected another state or country as their legal residence. Military personnel and dependents whose home of record is other than Virginia are considered as out-of-state residents.

Unemancipated minors (under age 18) are presumed to maintain the same domicile as their parents.

Being present in Virginia, maintaining a home, paying taxes, voting and having a Virginia driver's

license are factors which bear on the question but do not in themselves establish domicile. It is the responsibility of the applicant to present convincing evidence of his/her intent to be and remain a Virginia domiciliary permanently and indefinitely.

Graduation Fee

A non-refundable graduation fee of $10.00 shall be charged each graduating student to cover the necessary expenses. This fee is payable with the application for graduation on or before the announced application cut-off date for any quarter, but not later than January 31, 1978 for the June 1978 commencement.

Identification Cards

Student Identification cards are issued without charge at the time of initial registration. Lost cards will be replaced at a charge of $3.00 upon request, to the home campus Admissions and Records Office. ID cards are required for registration, course changes, transcript requests, library material use, admissions to special student activities, etc.

Books and Materials

Students are expected to obtain their own books, supplies, and consumable materials needed in their studies. It has been estimated that the cost of these items will average approximately $50-$70 per quarter for a full-time student.

Transcripts

The fee for each copy of a transcript is $1.00.

Vehicle Registration Fee

A vehicle registration fee of $5.00 a quarter must be paid by any student who wishes to park his car in the student parking lots. This fee is non-refundable unless all courses registered for are cancelled by the College and alternate course(s) are not elected. There is a $2.00 fee for replacement of lost decal upon presentation of original receipt. This fee is not refundable. Community service students also pay at the rate of $.25 per class meeting.

ABLE Examination Fee

A fee of $5.00 per course is charged for each ABLE exam attempted.

Payment by Check

Personal checks are acceptable for payment of tuition and fees. Checks payable to NVCC can only be accepted for the exact amount due. Tuition and fees paid at one time can be combined except for the vehicle registration fee. A service charge of $3.00 is charged for any check that is dishonored except if the bank is at fault. Any student that has a dishonored check that is the student's fault and not an error of their bank will be required to present CASH, CERTIFIED CHECK, or MONEY ORDER at future registrations. Their personal checks will not be accepted.

REFUNDS

Refunds for Courses Dropped

In order to drop a course, students must complete a "Student Schedule Change" form and submit it to the Office of Admissions and Records.

1. Refunds for Full-Time Students

No refunds will be made for individual course changes where a course is dropped, and the student continues to be enrolled for at least 12 credit hours.

During the first week of classes, if a full-time student drops individual courses (or the College cancels a course in which the student is enrolled and he does not elect to take an alternate course) which would result in his being enrolled for less than 12 credit hours, he will be eligible for full refund for the difference in hours between those for which he is enrolled and the 12 credit hours which is considered full-time.

After the first week of classes, full-time students will not be authorized refunds unless they officially withdraw from the College.

If a full-time student registers for a program which is cancelled by the College and the student does not elect to enter an alternate program, he should withdraw from the College.

2. Refunds for Part-Time Students

During the first week of classes if a part-time student drops a course (or the College cancels a course in which the student is enrolled), he will be eligible for full refund of tuition for that course.

After the first week of classes, part-time students will not be authorized refunds unless they officially withdraw from the College.

If a part-time student registers for a program which is cancelled by the College and the student does not elect to enter an alternate program, he should withdraw from the College.

3. Refunds for Short Sessions

For any session less than five weeks, students eligible for refund according to the provisions of the preceeding paragraphs 1 and 2, will be given a full refund if the drop occurs before the first day of classes; one half refund if the drop occurs on the first day of classes; and no refund if the drop occurs after the first day of classes.

4. Refunds for Extended Learning Institute (E.L.I.)

Adjustments in refund policy will be announced for certain individual E.L.I. Courses.

Refunds for Withdrawal from College

In order to withdraw from the College, students must complete an "Application to Withdraw from College" form and submit it to the Office of Admissions and Records. This form should, when possible, be presented in person to the Office of Admissions and Records. Official withdrawal from College for a student shall become effective on the date that this form is received by the Office of Admissions and Records.

1. Refunds for all regular session quarters and standard short summer sessions:
   a. Full refund of tuition paid if withdrawal is during first week of classes.
   b. One-half refund of tuition paid (rounded to nearest dollar) if withdrawal is during second week of classes.
   c. No refund if withdrawal is after the second week of classes.
2. For any sessions less than the standard short summer sessions:
   a. Full refund on or before the first day of classes.
   b. No refund after first day of classes.

OBLIGATION TO THE COLLEGE

All services will be withheld from a student who owes money to the college for any reason, or who has books or materials outstanding from the Learning Resource Center. This means that no transcripts will be issued, the student will not be permitted to register, no recommendations will be written nor other services provided.

Access to Student Records

The College observes Public Law 93-380 in providing for the privacy of official student records and the rights of students to review these records. Any student wishing to review his/her official records should present such a request to the Coordinator of Admissions and Records or Registrar. The College will not release any personally identifiable information about a student without the student's permission except to certain school and governmental officials as provided by the law. Requests by outside individuals and agencies for the release of information and student permission to do so must be presented in writing.

CREDITS

A credit is equivalent to one collegiate quarter hour credit or two-thirds of a collegiate semester hour credit. Usually, one credit for a course is given for approximately three clock hours of work *weekly* by each student as follows:

a. One hour of lecture plus an average of two hours of out-of-class study, or
b. Two hours of laboratory or shop work plus an average of one hour of out-of-class study, or
c. Three hours of laboratory or shop work with no regular out-of-class assignments.
d. Fixed credit and variable hours with behavioral objectives are assigned to each Developmental Course;
e. Variable Credit (1-5 credits) are assigned to all Supervised study, Seminar and Project, Cooperative Education, and Coordinated Internship courses.

GRADING SYSTEM

A = Excellent — Four grade points per credit

B = Good — Three grade points per credit

C = Average — two grade points per credit

D = Poor — One grade point per credit

F = Failure — 0 grade points

S = Satisfactory — No grade point credit (Applies only to specialized courses and seminars)

R = Re-Enroll — No grade point credit (A grade of "R" implies that the student was making satisfactory progress but did not complete all the course objectives. Students making satisfactory progress shall be graded with an "R" and must re-enroll to complete the course objectives.)

U = Unsatisfactory — No grade point credit (Applies only to specialized courses and seminars)

W = Withdrawal — No credit. A student withdrawal from a course without academic penalty may be made within the first six weeks after the beginning of a quarter and the student will receive a grade of "W". After that time the student will receive a grade of "F" except under mitigating circumstances which must be documented and a copy of this documentation must be placed in the student's academic file.

I = Incomplete — No credit; used for verifiable unavoidable reasons. Since the "incomplete" extends enrollment in the course, requirements for satisfactory completion will be established through student/faculty consultation. Courses for which the grade of "I" (incomplete) has been awarded must be completed by the end of the subsequent quarter or another grade (A, B, C, D, F, W) may be awarded by the instructor based upon course work which has been completed. A "W" grade should only be awarded under mitigating circumstances which must be documented and a copy of this documentation must be placed in the student's academic file.

X Audit — No Credit. (Permission of the Instructor and the Division Chairman is required to audit a class.)

The grade point average (GPA) is determined by dividing the total number of grade points earned in courses by the total number of credits attempted. The GPA is carried out to two digits past the decimal point (example 1.00), and no rounding shall be done to arrive at the GPA. When a course is repeated only the last grade will be used in the GPA computation for graduation. The following example illustrates a GPA of 2.00 obtained by dividing 36 by 18.

Course	Credit Hours Attempted	Grade	Grade Points	Credit Hours Comp'd	Total Grade Points
FREN 101	4	A	4	4	16
ENGL 101	3	B	3	3	9
PSYCH 110	3	C	2	3	6
MATH 121	5	D	1	5	5
ECON 160	3	F	0	0	0
ELEC 114	0	W	0	0	0
	18			15	36

Any grade errors or other errors on Grade Reports should be reported to the Office of Admissions and Records at the student's Home Campus within 30 days after the close of the Quarter in which grades were received or these may be assumed to be correct.

GRADING — DEVELOPMENTAL STUDIES COURSES

An "S" (Satisfactory) shall be assigned to indicate satisfactory completion of the course objectives for each developmental course.

Students making satisfactory progress but not completing all of the objectives for a developmental course shall be assigned an "R" (Re-enroll) and be re-enrolled to complete the course objectives.

Students not making satisfactory progress in a developmental course shall be assigned a "U" (Unsatisfactory). These students should consult with a counselor for possible re-evaluation of their goals and a determination of the direction of any subsequent academic work.

Credits earned for developmental courses are not counted in grade point computations toward graduation nor in determining sophomore status.

HONOR ROLL AND DEAN'S LIST

The name of every student who has a cumulative grade point average of 3.50 or higher and who has earned a minimum of 30 quarter hours of credit at the College is placed on the Honor Roll.

A student with a cumulative grade point average of 3.20 or higher who has earned a minimum of 15 quarter hours of credit is placed on the Dean's List.

DEGREES AND CERTIFICATES

Northern Virginia Community College offers the following degrees, or certificates for students who successfully complete approved curriculums at the College.

1. *The Associate in Applied Science degree (A.A.S.)* is awarded to students who complete one of the occupational-technical curricula and who may plan to obtain full-time employment immediately upon graduation from the College.
2. *A Certificate* is awarded to students who complete one of the approved curriculums that are usually less than two years in length.
3. *The Associate in Arts degree (A.A.)* is awarded to students who complete one of the fine art, liberal arts or music programs and who may plan to transfer to four-year colleges or universities.
4. *The Associate in Science degree (A.S.)* is awarded to students majoring in specialized curriculums such as business administration, teacher education, pre-engineering, and other pre-professional programs and who may plan to transfer to four-year colleges or universities after completing their community college programs.
5. Multiple Degrees — Students may earn more than one degree or certificate at NVCC. All of the graduation requirements for each individual curriculum must be completed prior to the award of the degree or certificate for that program. When the Associate in Science degree in General Studies is one of multiple degrees to be awarded a student, the A.S. degree in General Studies shall include a minimum of twelve quarter hours beyond the requirements of any other degree awarded to that student by the College.

GRADUATION REQUIREMENTS

Associate Degree Requirements

To be eligible for graduation with an Associate Degree *(A.A.S., A.A. or A.S.)* from the College a student must:

1. Have made application and been admitted to the program in which he seeks a degree;
2. Have fulfilled all of the course and credit hour requirements of his particular curriculum as outlined in the College Catalog; (The Catalog to be used to determine graduation requirements is the one in effect at the time of a student's initial registration to the College or any subsequent Catalog.)
3. Have been recommended for graduation by the appropriate instructional authority in his curriculum.

4. Have acquired at the college at least twenty percent of the credits applicable to an Associate Degree;
5. Have completed the general education requirements for an Associate Degree;
6. Have earned a cumulative grade point average of at least 2.00 on courses attempted which are applicable toward graduation in his particular curriculum;
7. Have filed an application for graduation in the Office of Admissions and Records on or before January 31, 1978, for June graduation 1978.
8. Have resolved all financial obligations to the College and returned all materials including library books.

Certificate Requirements

To be eligible for graduation with a Certificate from the College a student must:

1. Have made application and been admitted to the program in which he seeks a certificate;
2. Have fulfilled all of the course requirements of his particular Certificate curriculum as outlined in the College Catalog which includes achieving at least a passing grade in each course in the curriculum; (The Catalog to be used to determine graduation requirements is the one in effect at the time of a student's initial registration to the College or any subsequent Catalog.)
3. Have been recommended for graduation by the appropriate instructional authority in the student's curriculum;
4. Have completed the prescribed total quarter hours of credit for the Certificate, at least twenty percent of which must have been taken at the College;
5. Have filed an application for graduation in the Office of Admissions and Records on or before January 31, 1978, for June Graduation 1978.
6. Have resolved all financial obligations to the College and returned all materials including library books.

Certificate of Completion

If a student successfully completes a program of instruction which does not lead to an associate degree, he may be awarded a Certificate of Completion. Also, if he pursues a degree program but fails to meet the degree requirements, he may, upon recommendation of the appropriate instructional division and the Provost, be issued a certificate, provided the portion of study successfully completed is equivalent to an approved certificate program offered at the College.

Graduation Honors

Students who have attended Northern Virginia Community College for a minimum of 45 credit hours in degree programs and for at least 50% of the credit hours in certificate programs are eligible for graduation honors.

Appropriate honors based upon scholastic achievements are recorded on the student's degree as follows:

Grade Point Average	*Honor*
3.20	Cum laude (with honor)
3.50	Magna cum laude (with high honor)
3.80	Summa cum laude (with highest honor)

ACADEMIC REGULATIONS

Attendance

Regular attendance at classes is required. Absences equal to 30% of the scheduled instructional time for a course will be defined as unsatisfactory progress unless the instructor has made other arrangements for the class or individual students to complete the course objectives.

It is a student's responsibility to attend regularly only the section for which he is registered. Credit will not be granted for work in classes in which a student is not registered. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. Frequent unexplained absences may result in a dismissal from a course. The student is responsible for making up all work missed during an absence. Any instruction missed and not made up will necessarily affect the grade of the student, regardless of the reason for the absence.

Change of Registration

In all cases students should follow established procedures for making any change in their programs after registration. Failure to do so could place their college records in jeopardy.Changes, refunds, etc., are effective as of the time requested and approved. Retroactive changes are usually not permitted.

1. *Withdrawal from a Course —*

A student withdrawal from a course without academic penalty may be made within the first six weeks after the beginning of a quarter and the student will receive a grade of "W". After that time the student will receive a grade of "F" except under mitigating circumstances which must be documented and a copy of this documentation must be placed in the student's academic file.

2. *Addition of a course—*

In most cases a student may not enter a new class after the first week of a quarter. Any request for

entry after that period must be approved by the instructor, division chairman concerned and the Provost through the Admissions and Records Office.

3. *Withdrawal from the College—*

A student who wishes to withdraw from the College should contact a counselor to determine the appropriate procedure. Failure to follow established procedures could place the student's college record in doubt and affect his return to this or another college. This must be done in person, except under the most serious circumstances (hospitalization, death in family, etc.). The Admissions and Records Office should be contacted for instructions.

4. *Cancellation of a section or course by the College—*

A student must follow the withdrawal procedures in order to get a refund or add another course or section to replace the cancelled section.

5. *Transfer of Students between Curriculums—*

A student who wishes to transfer from one curriculum to another must initially consult a counselor before effecting the transfer.

Academic Standing

The College will take the initiative to advise and assist students who are having academic difficulty. The student will be assisted in setting objectives for himself, in planning improved study habits, and in dealing with other factors that relate to his academic progress. There must be some point at which the student, having been offered assistance by the College and having been appraised of his situation, is best served by being prevented from further registration for a period of time if he/she has shown no academic improvement.

1. *Academic Warning*

Any student who fails to attain a minimum grade point average of 2.00 for any quarter, or who fails any course, will receive an academic warning.

2. *Academic Probation*

Any student who fails to maintain a cumulative grade point average of 1.50 will be placed on academic probation until such time as his average is 1.50 or better. The statement "Placed on Academic Probation" will be placed on his permanent record. A person on probation is ineligible for appointive or elective office in student organizations and usually will be required to carry less than a normal course load the following quarter. A student on academic probation is required to consult with his counselor. A student pursuing a degree program is cautioned that, although an average between 1.50 and 1.99 may not result in formal academic probation, a minimum of 2.00 in his curriculum is a prerequisite to the receipt of an associate degree. Part-time students shall be placed on probation only after they have attempted twelve quarter credit hours.

3. *Academic Suspension*

The student on academic probation who fails to attain a grade point average of 1.50 for the next quarter for which he is in attendance will be subject to academic suspension. Academic suspension normally will be for two quarters unless the student reapplies and is accepted for readmission to another curriculum of the college. The statement "Placed on Academic Suspension" will be placed on the student's permanent record. A student who has been informed that he is on academic suspension may submit an appeal in writing to the Chairman of the Admissions Committee for reconsideration of his case. A suspended student may be readmitted after termination of the suspension period and upon formal written petition to the Chairman of the Admissions Committee. Part-time students will be placed on suspension only after they have attempted twenty-four (24) quarter credit hours.

4. *Academic Dismissal*

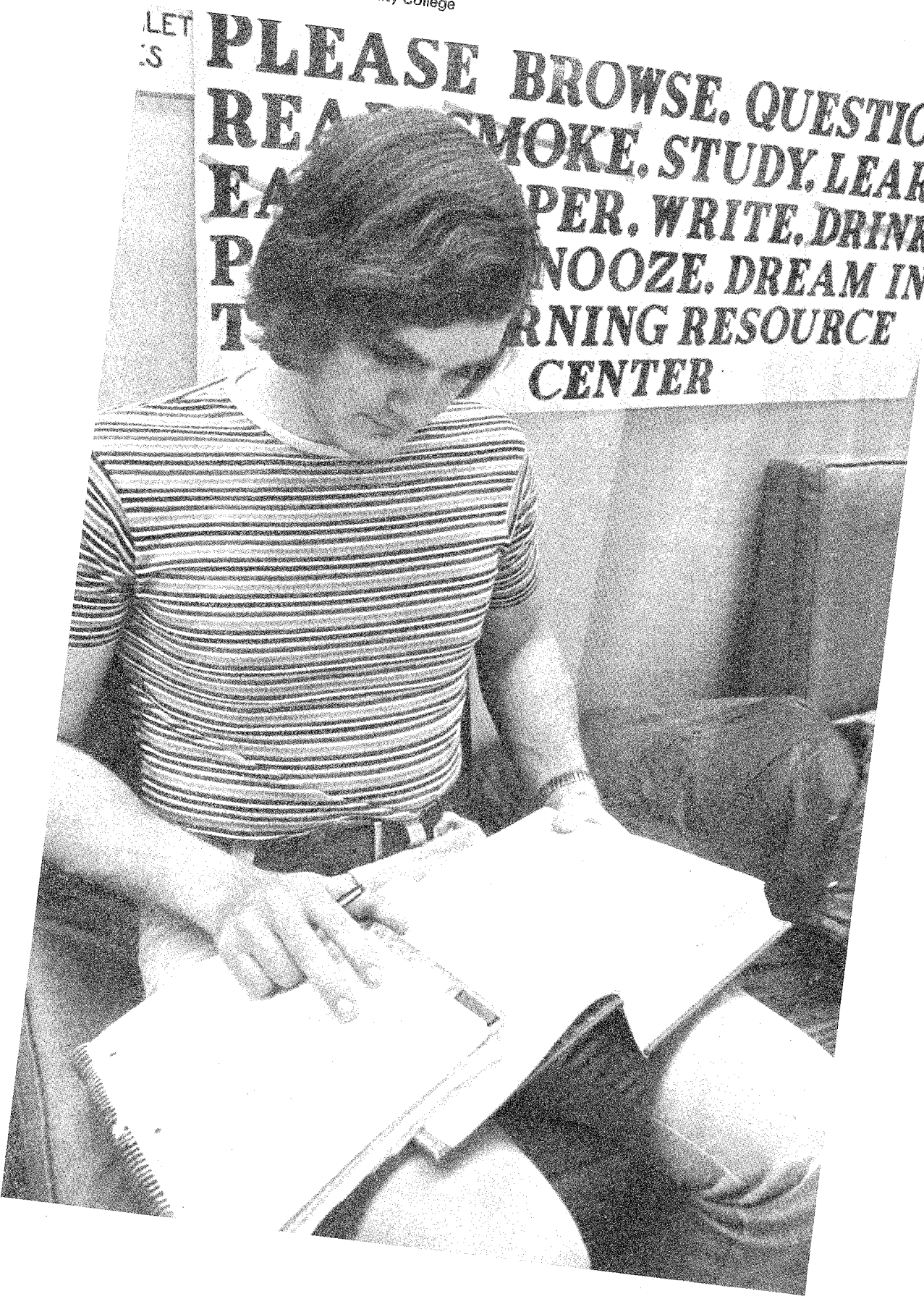
Students who have been placed on academic suspension and achieve a 2.00 grade point average for the quarter following their reinstatement must maintain at least a 1.50 grade point average in each subsequent quarter of attendance. The student remains on probation until his overall grade point average is raised to a minimum of 1.50. Failure to attain a 1.50 grade point average in each subsequent quarter will result in academic dismissal. Academic dismissal normally is permanent unless, with good cause, the student reapplies and is accepted under special consideration for readmission by the Admissions Committee of the college. The statement "Placed on Academic Dismissal" will be placed on the student's permanent record. Part-time students will be dismissed only after they have attempted thirty-six (36) quarter credit hours.

Examinations

Students are expected to take tests at the regularly scheduled times. In addition, every student is required to take a final examination, receive an appropriate evaluative instrument, or continue receiving instruction during the scheduled final examination period. Any deviation from the final examination schedule must be approved by the Provost.

Normal Academic Load

The normal academic load for students is 15-17 credits. The minimum full-time load is 12 credits and the normal maximum full-time load is 18 credits. A student wishing to carry an academic load of more than 18 credits must ordinarily have a 3.00 average or higher and must have the approval of the Provost or his designee and usually the student's faculty advisor or counselor.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STUDENT SERVICES

The College provides a number of services which are designed to contribute to each student's educational career and personal development. These services include counseling, testing, information, faculty advising, financial aid, job placement, health services, student activities, several miscellaneous services and, as described elsewhere in this Catalog, admissions and records. Students are encouraged to take advantage of these services and to feel free to contact for assistance the Dean of Student Development or other Student Development staff members on each campus. Students taking courses with the Extended Learning Institute can avail themselves of student services at their designated home campuses.

COUNSELING SERVICES

A staff of professional counselors is available on each Campus to assist students in any facet of their total development whether it be of an educational career, or personal nature. Interviews with counselors are confidential. Should a student's personal need require assistance beyond the scope of the services of the counselors, referrals will be made to qualified persons.

Counselors can help students explore and develop career goals and appropriate educational plans to achieve these goals. For a new student this may mean planning a developmental program to enable him to become qualified for full admission to a curriculum, securing admission to an appropriate curriculum, or planning for transfer to a senior college or university upon completion of his studies at the College. A student who wishes to enroll in a Degree or Certificate curriculum plans his first quarter of work at the campus of his choice in consultation with a counselor. Upon selecting a program major with the assistance of a counselor, he is then referred to a faculty advisor who assists him in planning his program of study each succeeding quarter. Students are encouraged to utilize the educational counseling services of the counselors at any time. A change-of-curriculum is made through a counselor.

The counselors are also specialists in assisting students with their personal and social adjustment and development. In doing this, a counselor may help the student explore the various demands and implications of college life, as well as find meaning for himself as an individual.

In helping students, counselors use appropriate standardized tests and inventories, career, educational and personal information materials, financial aid information, volunteer service placement information, job placement information, and special group programs such as Career Planning Seminars and Personal Exploration Groups.

Testing Services

A testing program available to all students is coordinated by the Counseling Services on each campus. Tests and inventories are available to help students know themselves, their abilities, and their interests. These tests and inventories are administered and interpreted by the counselors at no charge to the student.

Information about national testing programs, such as the "Test of English as a Foreign Language" (TOEFL) and "College Level Examination Program (CLEP) is also available from the Counseling Services of each campus.

Information Services

1. Orientation

A multi-phased orientation program is offered to new students to assist them in making a success of their college experience at NVCC. The orientation program for regular and special students may begin weeks before registration when the student is asked to meet with a counselor at the College for an interview. In this interview, the student's career and educational interests and goals are explored, the need for any additional tests or other information is determined, his application for admission to a specific curriculum is evaluated, and his first quarter's program of study is planned. As a part of this process, or after admission to a specific curriculum, the student is referred to a faculty advisor for assistance in planning his subsequent program of studies.

An orientation course (GENL 100) is required of all regular and special students, preferably in their first quarter at the College. This course is taught by the College counselors. Through it students not only gain additional information and experiences to help them succeed at the College but are also given assistance in their educational, career, and personal development. A wide assortment of options is available to students in this course to provide for individual needs. Counselors serve as facilitators of individual student development so that the college experience is as meaningful and vital as possible for each student.

2. Career, Educational & Personal Information

Students have available in the Counseling Center and in the Learning Resources Center at each campus published materials which supply them with helpful information to make career, educational and personal plans. These include books listing colleges and professional schools and a large collection of current catalogs from many of them. Other books and pamphlets describe the entrance requirements, working conditions, and compensations of thousands of career and job opportunities. Some materials are designed to help students learn how to go about planning their educational and career futures.

3. Student Handbook

A Student Handbook is available to provide additional information of interest and importance. The Handbook describes the student activities and organizations. It is important that each student become familiar with the contents of the Student Handbook. Among the many other information items of student interest can be found descriptions of: food services, bookstore information, parking regulations, statement on student rights and responsibilities, student government constitution, and a listing of College and Campus office locations and phone numbers.

FACULTY ADVISING

Each student who has been admitted to a specific curriculum through an interview with a counselor is referred in subsequent quarters to a faculty advisor to assist him in planning his program of study each quarter. In order to graduate a student must obtain certification by his faculty advisor that he has met all course requirements for his Degree or Certificate. Regular and Special Students are encouraged to seek information and assistance from their faculty advisors not only in planning their program of study each quarter but also in their career and occupational planning.

Unclassified students are those students who are not enrolled in a specific curriculum major and are not pursuing a degree or certificate award. It is expected that such students will identify their educational objectives by the time of registration. They may seek assistance from faculty advisors and counselors to select courses during registration periods. When assistance is needed prior to registration, Unclassified Students may seek the help of counselors.

Unclassified Students may become Regular and Special Students after submitting all necessary credentials and having an interview with a counselor. After admission to a curriculum they will then be referred to a faculty advisor for further academic advising.

FINANCIAL AIDS

It is the desire of the College that no qualified student be denied the privilege of attendance because of financial need. The Student Financial Aids Committee, composed of representatives of the administration, the student body and instructional faculty, is appointed by the President of the College for the purpose of providing information concerning aid programs, administering funds granted by donors, determining need, assessing applications and granting awards.

Numerous jobs on campus are available each year under the Work-Study Program. Students enrolled at least half-time who are in financial need may qualify for participation in this program.

Eligible students at Northern Virginia Community College may take advantage of National Direct Student Loans, Nursing Student Loans, and Virginia Farm Youth Loans. Students who need loans should contact the Financial Aids Office for information.

There is also a thirty-day-no-interest small loan fund available. This is available for students with immediate and short-term need as determined by the Financial Aids Counselor. In addition to demonstrating immediate need, eligible students must give evidence of ability to repay this loan within thirty days. Thus the loan fund becomes "revolving" and available for other students' use.

Supplemental Educational Opportunity Grants are federally funded and available for financially needy students. SEOG Awards are made in conjunction with other types of financial aid.

The Basic Educational Opportunity Grant program is a federally funded student support program for students attending at least half-time. The grant award is based on financial need.

The College Scholarship Assistance Program is a scholarship program provided for full-time, legal residents of Virginia showing financial need to enable them to attend a Virginia college. Students must be in good academic standing to be eligible for a scholarship grant. This program is provided through the State Council of Higher Education for Virginia. The deadline for making application is usually early March prior to the Fall Quarter.

Virginia State Nursing Scholarships are available to legal residents of Virginia based on academic ability, need and agreement to pursue a career in nursing in the State of Virginia.

Students wishing to apply for financial aid may secure applications from the Financial Aid Office located on each campus. Application should be made well in advance of the quarter for which assistance is required.

SCHOLARSHIPS

Private citizens, businesses, non-profit institutions and associations have generously donated scholarship awards for Students. Many students are selected by the Student Financial Aids Committee, others by the donor. Most have a requirement of financial need and some are curriculum or career related. Interested students should see the Financial Aids Counselor on their campus for the current availability of these scholarships.

American Society for Industrial Security

Scholarships for Security Administration students at the Annandale and Alexandria campuses.

Bailey's Crossroads (Host) Lions Club

Scholarships awarded to needy students for tuition and books. Only J.E.B. Stuart High School graduates will be considered.

Mark R. Bolster Memorial Scholarship

Provides a one year tuition award to a George Mason High School graduate attending NVCC.

John Budoff Memorial Scholarship

This scholarship is awarded to an HRIM student training to become a chef, having financial need and educational potential.

Bull Run Chapter of the Forty and Eight

A scholarship in the amount of $300, awarded to a student of Nursing.

Daniel F. Hayes Memorial Scholarship

To be awarded to a student in the Health and Public Service Technologies Division.

District of Columbia Dental Society

Scholarships of $250 each to one Dental Assisting and one Dental Laboratory Technology student.

Gretchen Gamble Scholarship Fund

A scholarship to a student in Dental Technology.

IBM Corporation Scholarships

These awards are made to minority group students on the basis of financial need. At the request of IBM, awards are made primarily to Manassas campus students.

Doctor Lloyd and Elizabeth Iddings Scholarship

One $450 scholarship awarded to a student out of high school 5 years or more.

Joseph R. Kemper Forestry Scholarship

This scholarship is awarded to a student majoring in forestry related curricula with preference given to Prince William County residents and Woodbridge campus students.

Angela Gregory Scholarship

A two-year scholarship of up to $450 is available to a Prince William County High School graduate or to any resident of Prince William County based on need.

Marriott Foundation

Four scholarships given annually to students in the food service curriculum.

Mary Cavallaro Memorial Award

A $225 Scholarship for a physically handicapped, full-time student, Virginia resident, demonstrating financial need. Other criteria are established by the donor with selection made by the College Financial Aids Committee.

Northern Virginia Board of Realtors

Ebner R. Duncan Scholarship award of $250 to students residing in Northern Virginia and majoring in the field of Real Estate.

Northern Virginia Builders Association Auxiliary

Two $250 scholarships for students majoring in Architectural Technology or Interior Design.

NVCC Nursing Alumnae Scholarship

A scholarship for a nursing student given on the basis of academic standing, nursing potential, leadership quality and financial need.

Phi Beta Lambda

This scholarship award of $225 is given to a second-year student with 45 credits who is enrolled in a Business Curriculum on the basis of scholastic achievement and financial need.

Potomac Lung Association

A $3150 grant to be awarded as scholarships to two nursing students and one respiratory therapy student.

William Montgomery Smith Memorial Scholarship

This scholarship is awarded to a needy student in the police science program, with preference to an Annandale student.

Springfield-Annandale Junior Women's Club

A $100 scholarship (for purchase of books) to be awarded to a student majoring in Early Childhood Education.

Theta Rho Lambda Chapter, Alpha Phi Alpha

Three $250 scholarships are awarded annually based on need.

Virginia Hotel and Motel Association

Scholarships to students in the Hotel, Restaurant and Institutional Management program.

Women's Auxiliary to Fairfax County Medical Society

A scholarship awarded to a nursing student who has successfully completed one or two quarters of the nursing program.

Women's Club of McLean

A scholarship to be awarded on the basis of financial need, with preference given to McLean area residents.

Zonta Club of Arlington

Scholarship awarded to Dietetic Technician program students at Annandale Campus.

AWARDS

Philip Arnow Award in Art

Annual purchase award of $100 for student art, Annandale Campus.

OTHER SCHOLARSHIPS

There are frequently other funds (e.g. recently donated scholarships) available in addition to those mentioned above. The Student Financial Aids Committee makes awards from these funds. Students interested in learning of scholarships available should check with the campus Financial Aids Office.

PLACEMENT SERVICE

The College maintains a Placement Service for students who wish to secure off-campus employment while attending college, during vacations, or after graduation.

The College cooperates with local businesses to assist students in securing part-time employment. An effort is made to place students in fields which relate to their college programs. Students who work more than 20 hours per week are advised to adjust their course loads accordingly. Placement information may be secured from the Placement Counselor on each Campus.

STUDENT HEALTH SERVICES

A Student Health Service, staffed by registered nurses, is located on the Alexandria, Annandale, Loudoun, Manassas and Woodbridge campuses. A nurse is available for individual health counseling and referral to appropriate community resources as needed. Various health education and health screening programs are sponsored by Student Health Services during the year. The nurse on duty provides emergency care for any on-campus illness or injury.

Two staff members from the Woodburn Center for Community Mental Health are available at the Alexandria and Annandale Campuses for consultations, by appointment, through the Health Services, to assist students, faculty and staff members with problem situations.

A student accident and health insurance policy is available. Students without other accident and health insurance are encouraged to consider the coverage provided by this policy.

STUDENT ACTIVITIES

The student activities program is designed to complement the instructional program by providing a variety of meaningful, educational, cultural, and social experiences. The Office of the Coordinator of Student Activities assists students and faculty in the planning of extracurricular events and in the development of student organizations. The Student Government Association provides support to student groups and interested students in the promotion of activities on campus. Student activities and organizations are open to all interested students, faculty and staff.

Those student organizations recognized by the College include:

Alpha Phi Omega (National Service Fraternity)

Alpha Sigma Sigma

African Student Union

Amateur Radio Club

American Chemical Society

American Society of Fire and Safety Specialists

Anthropology Club

Art Association

Baptist Student Union

Black Studies Association

Black Student Union

Bridge Club

Campus Student Governments

Chess Club

Christian Fellowship

Dental Assistants Association

Drama Club

Ecology Club

Education Association

Epsilon Kappa Psi (Service Fraternity)

Gamma Sigma Sigma (National Service Sorority)

Graffitti Club

Ham Radio Club

Hiking Club

Manna

Martial Arts Club

Mathematics Club, Mu Alpha Theta

Medical Technology Club

Minerva Club

Nazarene Christian Campus Fellowship

NOVA Joggers

Outing Club

Parks and Recreation Society

Phi Alpha Epsilon

Phi Beta Lambda (National Business Fraternity)

Phi Theta Kappa

Physical Education Majors Club

Psychic Sciences Club

Ski Club

Spanish Club

Student Education Association

Students' International Meditation Society

Student Nurses Association

Tennis Club

Veterans Club

Visual Arts Association

Wargaming Society

MOBILE INFORMATION AND COUNSELING CENTER

The college maintains a mobile information and counseling unit which visits all nine jurisdictions served. In this way, an effort is made to communicate directly with the citizens of the various communities to increase their awareness of the College's educational programs, activities and services.

VEHICLE REGISTRATION FEE

All students, full or part-time, who wish to use Northern Virginia Community College student parking facilities must register their vehicles with their campus security office. The registration fee is $5.00 per quarter. Vehicles can be registered during registration or during the first week of classes each term.

CHILD CARE CENTERS

Non-profit Child Care Centers operated by the Northern Virginia Community College Child Care Association enable student-parents to attend college classes while at the same time providing a wholesome child development program for their preschool aged children from two through six. Under the supervision of a highly qualified staff, the Centers are housed at locations convenient to two of the campuses, the Ravensworth Baptist Church of Annandale and the Culmore United Methodist Church near Bailey's Crossroads. Both Centers serve students attending one or more campuses and are open Monday through Friday beginning with the first day of classes in the Fall Quarter and continuing until the end of Spring final exam week. The Annandale Center is also open during the summer session. Students schedule their children at a Center on a quarterly basis. Hourly and weekly rates are available. Preregistration is recommended and a registration fee is required. Parent involvement is fostered in all possible ways. Further information and registration packets may be obtained from the Counseling Office of any NVCC campus; at the child care centers, or by telephoning the main office at 941-1960.

Child care on the Loudoun Campus is open to children ages 2-6 between 8:30-4:00 p.m. on weekdays. Maximum use allowed is 4 hours per day. The center on the Loudoun Campus is located in the Main Building, Room 109. For additional information call 430-7424.

Information about Child Care at the Woodbridge Campus may be obtained at the Counseling Office, Room 219, Ext. 243.

THE LEARNING RESOURCE CENTERS

A Learning Resource Center is designed for each campus, with a Library, Learning Laboratories and Audio-Visual Services.

The total college collection of over 100,000 units of print and non-print materials is accessed through joint union catalogs. Books, periodicals, films, and other resources are loaned among campuses by inter-campus mail couriers.

Library: Open stacks and immediate access to materials are basic to all campuses. Books, newspapers, pamphlets, documents, and other materials are selected primarily for support of the campus instructional programs, as well as for personal intellectual growth and the development of a cultural environment. Extensive use of microforms for information storage and retrieval adds breadth and depth to the resources.

Each campus library offers basic reference and curricular resources and is enriched by access to the total college collection. Staff members provide reference assistance and instruction in the use of the resources.

Learning Laboratories: Instructional design for individualized learning is the major function of the Learning Laboratories. Programmed instruction and audio-tutorial methods are developed and administered by Learning Lab staff. Electronic study carrels are equipped for audio and visual presentations.

Both specialized and generalized Learning Laboratories are designed to support independent learning within curricular requirements. Trained staff provides access and instruction, administers and grades tests, and provides tutorial services.

Audio-Visual Services: Support for classroom instruction, community services, library, and learning laboratories are a function of Audio-Visual Services. Assistance in the technological aspects of instructional design is also provided. Reprographics and photography are available. Television and other mediated approaches to instruction in all major formats are produced by the Audio-Visual Services.

VOCATIONAL REHABILITATION

The College cooperates with the State Department of Vocational Rehabilitation in providing education and training for persons with handicaps.

VETERAN'S BENEFITS

The degree curricula of the College as listed in this Catalog have been approved by the Veterans Administration for the training of eligible veterans, war orphans, and widows under the appropriate Congressional action.

All veterans, widows, and the dependents of qualified veterans who may be eligible for educational benefits should contact the Veterans Administration Regional Office. Initial enrollment applications for educational benefits are available from the Office of Admissions & Records but must be processed by the local V.A. Office. All persons seeking V.A. educational benefits for any given quarter must register and complete the appropriate forms at the specified station during registration for classes. Receipt of benefits in full and on time is dependent in part on the individual student's attention to these requirements.

Full time V.A. educational benefits are available to eligible students who register for and maintain enrollment in twelve or more credits in degree program courses. Since veterans receiving educational benefits must be pursuing an approved educational program, such students must be program placed by the end of their second quarter of enrollment to continue eligibility for such benefits. Veterans with credits earned at another college, through USAFI, CLEP, etc. and applicable to their curriculum must insure that an official transcript showing all credits earned and or satisfactory completion is available in the Admissions & Records Office during the first quarter of enrollment. Courses registered for must be part of their educational program with generally no repetition of a course for which credit has already been received, or will be received.

Students receiving veterans educational benefits must report any enrollment changes promptly to the veterans clerk. Excessive absences may result in dismissal from a course and adjustment of entitlement to benefits. Continued eligibility for benefits is also dependent on maintaining satisfactory progress toward a degree in terms of quarters of enrollment, credits completed and GPA status. For example, normal progress for a full-time student would mean completing most degree programs in six to eight quarters depending on the total credits required.

Any change in the status of a student receiving veteran's benefits, whether that be a change of curriculum, reduction or increase in course load, withdrawal, suspension, dismissal or other type of changes will be reported to the Veterans Administration as soon as possible but no more than 30 calendar days after the process has been officially completed at the college. However, a veteran may remain on probation only one quarter without being reported as making unsatisfactory progress. If not raising his grade point average above the probationary level during the quarter in which the student is on probation, his unsatisfactory progress will be reported at the end of the probationary quarter. In this context, when a veteran's GPA drops below the minimum GPA required for graduation, his GPA in his designated curriculum each subsequent quarter must be equal to or above the trend line recovery to the minimum GPA required for graduation in order for that veteran to be certified as making satisfactory progress.

A student receiving veteran's benefits and enrolled in two or more courses will be considered as making unsatisfactory progress for benefits certification purposes when failing or withdrawing from all courses. However, depending upon the veteran's academic record and in consideration of extenuating circumstances, the college may excercise the option of (A) notifying the VA to terminate benefits, or (B) to continue the student in probationary status for one quarter without being reported as stipulated in the paragraph above.

Questions regarding entitlement to benefits should be directed to the campus veterans office.

OFFICE OF VETERAN'S AFFAIRS

The College participates in the Veterans Cost of Instruction Program, a federal program designed to assist Veterans in becoming students and supporting their educational endeavors while enrolled. The OVA coordinates all veterans' related activities for the College. Veterans benefits, information and counseling services for veterans are available at each campus.

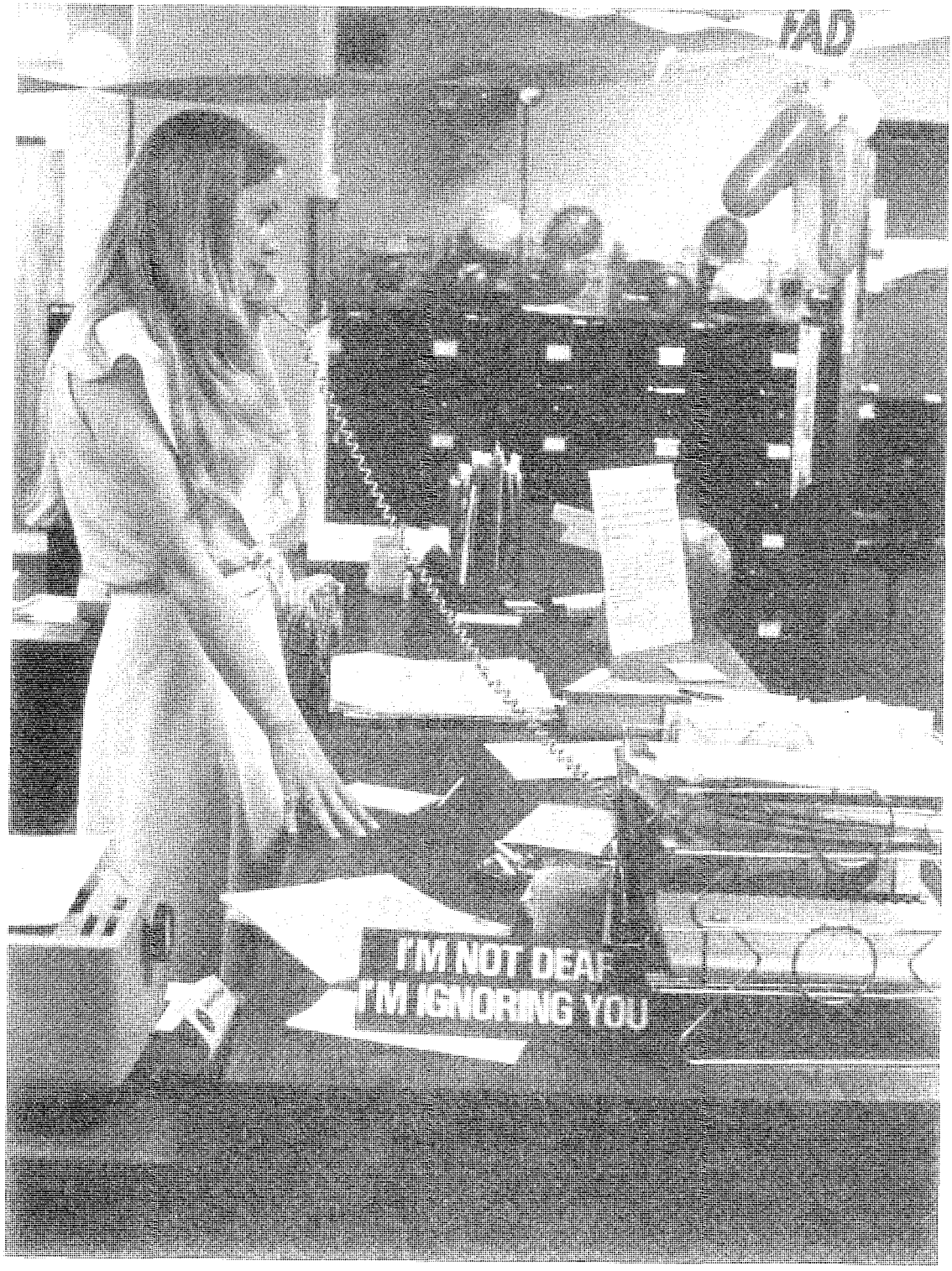
SERVICEMEN'S OPPORTUNITY COLLEGE

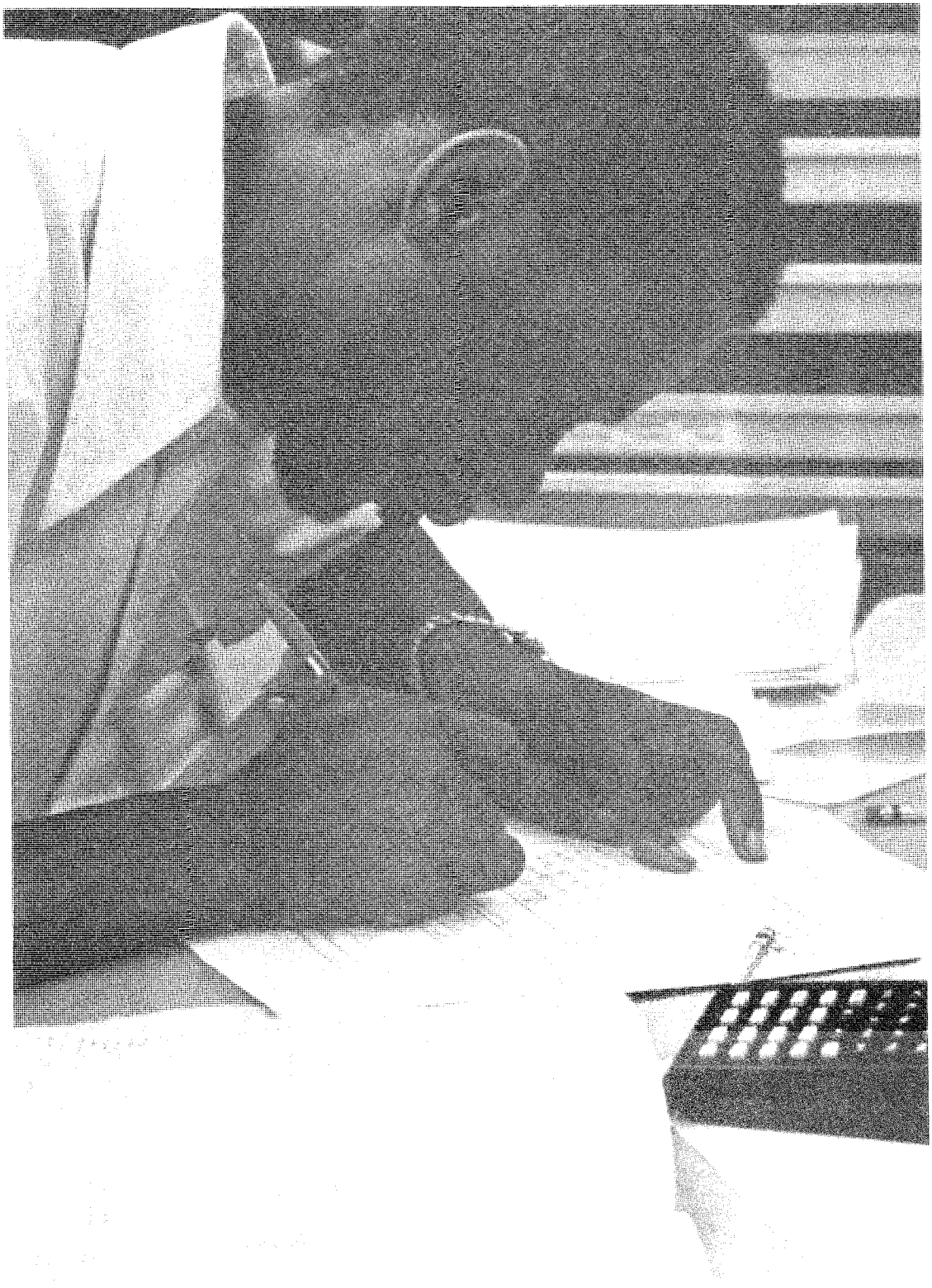
Northern Virginia Community College has been identified, by the American Association of Community and Junior Colleges, as a Servicemen's Opportunity College (SOC) and is committed to the concept of providing educational assistance to active-duty servicemen in obtaining their educational goals. A SOC institution offers the following benefits for servicemen:

1. Liberal Entrance Requirement
2. The opportunity to pursue educational program goals through courses offered on base, in the evenings, on weekends, and at other non-traditional time frames.
3. Opportunities to complete courses through special means or optional non-traditional modes when education is interrupted by military obligations.
4. The opportunity for special academic assistance.
5. The offering of maximum credit for educational experiences obtained in the armed forces.
   a. USAFI
   b. CLEP
   c. GUIDE to the Evaluation of Educational Experiences in the Armed Services

   (i.e. the major portion of associate degree requirements can be earned through the above non-traditional learning modes.)

6. Residency requirements adaptable to the mobility and special needs of servicemen.
7. The offering of a liberal policy for the transferring of credits from other institutions.
8. The provision of a local advisory council.





INSTRUCTIONAL PROGRAMS

The formal instruction provided by the College is presented in planned programs which include the Continuing Education and Community Service Program, Cooperative Education Program, Developmental Studies Program, Special Training Program and the Certificate and Degree Curricula. A description of each of the programs and a separate description for each curriculum is included in this section of the Catalog.

CONTINUING EDUCATION AND COMMUNITY SERVICE PROGRAMS

In order to fulfill the educational needs of the community, the Northern Virginia Community College offers a well-planned diversified program which includes the following: (1) An opportunity to pursue degree programs, certificate programs and college credit courses; (2) Classes, forums, lectures, exhibits, short courses, art festivals and music festivals to promote cultural affairs of the community; (3) Various community development programs and seminars which focus attention on social issues; (4) An offering of special courses or programs to the community's several industries, businesses, or professions, directed and taught at the College or at the client's site by the faculty and staff of the College; (5) Special services such as use of the College facilities, tours and visits, and others as they are needed; (6) Non-credit courses and workshops for the general community which can be planned in response to requests based on immediate needs; topics ranging from leisure education to job related training.

Continuing Education Unit for Non-Credit Course

Continuing Education Units (CEU) will be awarded for certain designated community service courses or program offerings meeting the following standards:

a. The non-credit activity is planned in response to an assessment of educational needs for a specific target population.

b. There is a statement of objectives and rationale.

c. Content is selected and is organized in a sequential manner.

d. There is evidence of pre-planning.

e. The activity is instructional and is approved by an academic or administrative unit of the institution best qualified to affect the quality of the program content and to approve the resource personnel utilized.

f. There is provision for registration for individual participants.

g. Evaluation procedures are utilized, and criteria are established for awarding Continuing Education Units to individual students prior to the beginning of the activity.

One Continuing Education Unit represents ten contact hours of participation in an organized educational experience under responsible sponsorship, capable direction, and qualified instructor. (A decimal fraction of a unit may be awarded for an offering of shorter duration.)

COOPERATIVE EDUCATION PROGRAM

Cooperative Education is an academic program designed to provide the student with actual, valuable, and practical work experience which carries college credit for a supervised, paid, learning program with a participating employer. The main objective of Co-op is to bridge the gap between theory and practice by allowing the student to apply skills learned on campus to practical on-the-job learning situations. It is generally up to the individual student to determine if Co-op will enhance his particular academic program, with the cooperation and advisement of the student's faculty advisor and the coordinator for the Cooperative Education program. Students enrolled in Co-op will gain valuable experience not only in the actual job functions, but also in their introduction to the world of work. The qualifications for participation in the Co-op program are:

1. A student should have a clearly stated set of career goals related to the potential work experience, and must be enrolled in a degree program in the curriculum under which the Co-op work experience is classified, or otherwise be in a position to benefit from career related work experience.
2. A student must have a 2.00 grade point average before he may enroll in the Co-op program.
3. A student must have approximately 30 quarter hours of course work, or the equivalent of two full quarters of college work in his curriculum before entrance into the program.
4. A student must be hired by an approved Co-op employer before enrollment into the program. In any case, a student's participation must be approved in writing from the Co-op program coordinator before he may register for Co-op credit.

Credits earned in an approved Cooperative Education program may be substituted for up to 15 hours of course work in the student's total curriculum. Specific course substitution must be approved by the faculty advisor.

For further information, contact your campus Cooperative Education Office.

DEVELOPMENTAL STUDIES PROGRAM

The Developmental Studies Program provides, for students who are not fully prepared for a degree curriculum, an opportunity to obtain the basic skills, knowledge and educational experiences needed for success in the entry-level courses of the College's various programs. Developmental courses are offered in biology, chemistry, English composition, reading, mathematics, and physics. These courses employ a wide variety of instructional methods, materials, and equipment so that students may develop, by the most effective educational means, the specific skills they require. Students may enroll in one-quarter lecture/discussion courses or in individualized courses which allow each student to progress at his own rate. In the latter, students may complete the course at any time they can demonstrate mastery of the minimum required skills.

Students in the Developmental Studies Program may take all of their work at the developmental level, or they may include degree-level courses for which they are qualified. Credits earned in the latter may be transferred to a degree curriculum (if the credits are applicable) upon admission to the curriculum.

Students are urged to consult with the Counseling Services of the College in planning their programs and selecting their courses.

Developmental Studies Program

(Example)

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	01 Verbal Studies Lab	5	5	5
ENGL	08 Reading Improvement	5		
MATH	01 Developmental Math	5	5	5
GENL	100 Orientation	1		
PSYC	110 Principles of Applied Psychology		3	
PHED	100 Fundamentals of Physical Activity		1	
PHED	Physical Education Elective			1
NASC	100 Survey of Science			4
	Total Credits	16	14	15

Courses will vary according to the individual needs of the student. The program illustrated above would be typical for a student needing three quarters to achieve desired skill-levels in English and mathematics.

SPECIAL TRAINING PROGRAMS

Northern Virginia Community College works closely with the Special Training Division of the Virginia Department of Community Colleges in setting up training programs for industries and businesses that are expanding their facilities or are locating in Virginia for the first time.

Under these programs Virginians are trained in the basic skills required by a wide variety of job opportunities.

A few skills that have been taught by the Special Training Division include sewing operations, welding, electronics, motor winding, furniture construction, electronic assembly, shoe manufacturing, telephone assembly, paper manufacturing, candy making, printing, metal forming, tire manufacturing, supervisory development and machine operation.

Space, where needed, and qualified instructors are provided at State expense.

Further information may be obtained from the Director of Continuing Education and Community Service Programs or the Special Training Division, Virginia Department of Community Colleges, Richmond, Virginia 23219.

CURRICULA OF STUDY

GENERAL INFORMATION PERTAINING TO CURRICULA

In the following section, the degree curricula and certificate curricula are listed. They are arranged in alphabetical order according to title of the major or special area of study. Each curriculum listing:

1. Provides information concerning occupational or transfer objectives;
2. States special curriculum admission requirements, if any, beyond those for admission to the college;
3. Specifies the required courses and minimum number of hours for completion;
4. Suggests a sequence for taking courses;
5. Provides an outline to follow for completion of the curriculum with full time study.

GENERAL REQUIREMENTS FOR A.A.S. DEGREES

Major Courses and Credit requirements:

1. Approximately 50% of the courses or credit hours in all A.A.S. degree curricula are in the given major area of study.
2. Approximately 25% of the courses or credit hours are in closely related and supporting areas.
3. The total number of credit hours required for each curriculum is specified with the minimum number for any degree being 97 credits.

General Education Courses for A.A.S. Degrees

Each degree curriculum contains a minimum of 25% of the total credit hours in general education

areas. Those areas include Humanities, Social Science, Mathematics and Natural Science.

Some substitutions within the Humanities and Social Science areas are allowed for the A.A.S. Degree. These are as follows:

1. *English* (Total of 9 credits required)

ENGL 111-112 English Composition I-II (6 cr.)
AND
ENGL 113 English Composition III (3 cr.) OR
SPDR 136 Oral Communication (3 cr.) OR
ENGL 137 Technical Writing (3 cr.) OR
ENGL 180 Business English (3 cr.)

Each curriculum lists the preferred third course. The courses should be taken in the sequence stated in the given alternatives with the exception that SPDR 136 may be taken at any time.

2. *Social Science* (total of 9 credits required)

Alternative A — GOVT 180 American Constitutional Government (3 cr.) AND
ECON 160 American Economics (3 cr.) AND
PSYC 110 Principles of Applied Psychology (3 cr.)

Alternative B — SOSC 101-102-103 Contemporary American Civilization I-II-III (9 cr.)

Alternative C — any 3 quarter (9 cr.) course sequence in one of the following disciplines:
Anthropology
History
Government
Psychology
Sociology
Social Science
Geography
Economics

Alternative A, B or C may be taken to satisfy the Social Science requirement for an A.A.S. Degree and they need not be taken in the sequence listed in either alternative.

Special Requirements for A.A.S. Degrees:

1. GENL 100 Orientation (total of 1 credit)

2. PHED Physical Education (total of 3 credits)

PHED 100 Fundamentals of Physical Activities is required. The remaining 2 credits may be selected from the various 1 credit hour activity courses.

Course Level Requirement

Only courses designated with 100 level and above numbers are counted toward degree requirements.

GENERAL REQUIREMENTS AND ELECTIVES FOR A.A. AND A.S. DEGREES

Elective Requirements

Specified electives are sometimes given according to discipline area requirement. The exact course to be taken is to be chosen with approval of a counselor or faculty advisor.

Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated. A full year's sequence of courses is generally easier to transfer than only 1 or 2 quarters of a sequence. Quarter hour and semester hour equivalencies should be calculated if transfer is contemplated to an institution operating on the semester system.

English Requirement

For transfer purposes, students should take: ENGL 111-112-113 English Composition (9 cr.) and 200 Level Literature course.

Mathematics Requirement

Mathematics courses for transfer purposes should be selected from one of the following course sequences:

1. For *Non-Science, Non-Mathematics, and* Non-Engineering Majors:
MATH 191-192-193 Finite Mathematics
MATH 161-162-163 College Mathematics
MATH 181-182-183 General College Mathematics
MATH 141-142-143 Introductory Mathematical Analysis

2. For *Science, Mathematics, and Engineering* Majors:
MATH 141-142-143 Introductory Mathematical Analysis
MATH 161-162-163 College Mathematics and
MATH 241-242-243 Advanced Mathematical Analysis

Foreign Language Requirement for A.A. Degree in Liberal Arts

Students who wish to receive an Associate in Arts degree in Liberal Arts must demonstrate proficiency in one foreign language through the intermediate level, either by examination or by completion of course work. Students who have previously studied a foreign language and who wish to continue the same language must make arrangements with the foreign language faculty of the Humanities Division to take a placement test. Students who have successfully completed (within the last two years) the second level in High School of a foreign language should not enroll in 101-102-103 of the same language. They should take 106 or 201, depending on the results of their placement test.

Humanities Requirement

Humanities courses for transfer purposes may be selected from the following fields: Music, Art, Drama, Humanities, Language, Philosophy, Speech or English. The Humanities course sequence selected should be the one acceptable to the four-year College or University to which transfer is contemplated.

Social Science Requirement

Social Science courses for transfer purposes may be selected from the following fields: Economics, Geography, Government, History, Psychology, Social Science, or Sociology. Anthropology may be found listed as a Sociology course. The social science course sequence selected should be the one acceptable to the four-year College or University to which transfer is contemplated.

Natural Science Requirement

Natural Science courses (with labs) for transfer purposes may be selected from the following fields:

1. For *Science Majors:* Biology, Chemistry, Physics and Geology.
2. For *Non-Science Majors:* Biology, Chemistry, Physics and Geology and the Natural Science 121-122-123 course sequence.

Special Requirements for A.A. and A.S. Degrees

1. GENL 100 Orientation (total of 1 credit)
2. PHED Physical Education (total of 3 credits)

PHED 100 Fundamentals of Physical Activities is required. The remaining 2 credits may be selected from the various one credit hour activity courses. The physical education requirement of the institution to which transfer is contemplated should be completed prior to transfer if at all possible.

Course Level Requirement

Only courses with 100 level or above numbers are counted toward degree requirements.

Minimum Credit Requirements

A minimum of 97 credits is required for an A.S. or A.A. degree.

GENERAL REQUIREMENTS FOR CERTIFICATE CURRICULA

1. The total minimum number of credits required for the given certificate is specified for each curriculum.
2. All major courses and possible substitutions are given with each curriculum.
3. The required general education component is incorporated in each curriculum listing.

CURRICULA OF STUDY

The certificate and degree curricula offered by the College are entered in alphabetical order by title in the following list. All general education, orientation, and physical education courses which are required for degree and certificate curricula are offered on all campuses of the College. Specialized major courses required for some degree curricula are not offered on all campuses. Those campuses offering all of the major courses needed for a given degree or certificate are noted by an X in the appropriate box following the curriculum entry. Campus symbols are as follows: AL-Alexandria, AN-Annandale, LO-Loudoun, MA-Manassas, WO-Woodbridge.

	AL	AN	LO	MA	WO
Accounting (A.A.S.)	X	X	X	X	X
*Air Conditioning & Refrigeration (A.A.S.)					X
Air Conditioning & Refrigeration (Certificate)					X
Animal Science Technology (A.A.S.)			X		
Architectural Technology (A.A.S.)	X	X		X	
Art/Commercial Art (A.A.S.)	X		X		
Art Education (A.A.)	X	X	X	X	X
Art/Fine Art (A.A.)	X	X	X	X	X
Art/Fine Art Photography (A.A.)	X				
Art History (A.A.)	X	X	X		
Automotive Body Reconditioning (Certificate)				X	
Automotive Diagnosis and Tune-up (Certificate)	X			X	
*Automotive Electrical Technician (Certificate)	X				
Automotive Machinist (Certificate)	X				
Automotive Parts Merchandising (Certificate)	X				
Automotive Technology/Diagnostician (A.A.S.)	X			X	
Automotive Technology/Mechanics (A.A.S.)	X			X	
Aviation Technology/Air Traffic Control (A.A.S.)				X	
Aviation Technology/Aviation Administration (A.A.S.)				X	
Aviation Technology/Flight Attendant (Certificate)				X	
Banking and Financial Management (A.A.S.)	X				
Broadcast Engineering Technology (A.A.S.)		X			
Building Construction Technology (Certificate)	X			X	
Business Administration (A.S.)	X	X	X	X	X
Business Management (A.A.S.)	X	X	X	X	X
Civil Engineering Technology (A.A.S.)	X	X			
Construction Inspection (Certificate)	X			X	
Construction Management Technology (A.A.S.)	X			X	
Corrections Science (A.A.S. & Certificate)	X	X		X	X
Data Processing (A.A.S.)	X	X		X	
Dental Assisting (Certificate)		X			
Dental Laboratory Technology (A.A.S.)		X			
Dietetic Technician (A.A.S. & Certificate)		X			
Drafting and Design Technology (A.A.S.)	X			X	
Early Childhood Development Assistant (Certificate)	X				
Early Childhood Development Associate (A.A.S.)	X				
Educational Assistant (Certificate)	X				
Educational Associate (A.A.S.)	X				
Education (A.S.)	X	X	X		X
Electronics Technology (A.A.S.)		X			X
Electronics Technology (Certificate)				X	
Emergency Medical Technician (Certificate)		X			
Engineering (A.S.)	X	X			
Engineering Drafting (Certificate)	X	X		X	
Environmental and Science Technology/ Science Technology (A.A.S.)					X
Environmental and Science Technology/Science Technician Aide (Certificate)					X

*Pending Approval

	AL	AN	LO	MA	WO
Environmental and Science Technology/Wastewater Treatment (A.A.S. & Certificate)					X
Fire Science/Administration (A.A.S. & Certificate)	X	X			
Fire Science/Investigation (A.A.S. & Certificate)	X	X			
Fire Science/Management (A.A.S. & Certificate)	X	X			
General Studies (A.S.)	X	X	X	X	X
Horticultural Technology/Floral Design (A.A.S.)			X		
Horticultural Technology/Landscape Grower (A.A.S.)			X		
Hotel, Restaurant and Institutional Management/ Food Service (A.A.S. & Certificate)		X			
Hotel, Restaurant and Institutional Management/ Hotel Management (A.A.S. & Certificate)		X			
Hotel, Restaurant and Institutional Management/ Travel and Tourism (Certificate)		X			
Human Services Associate/Alcohol & Drug Abuse Rehabilitations (A.A.S.)	X				
Human Services Associate/Gerontology (A.A.S.)	X				
Human Services Associate/Mental Health (A.A.S.)	X				
Human Services Associate/Social & Community Services (A.A.S.)	X				
Interior Design (A.A.S.)			X		
Liberal Arts (A.A.)	X	X	X	X	X
Mechanical Engineering Technology (A.A.S.)		X			
Medical Laboratory Technology (A.A.S.)	X				
Medical Record Technology (A.A.S.)		X			
Merchandising/Fashion (A.A.S.)	X	X			X
Merchandising/Retail (A.A.S.)	X	X			X
Music (A.A.)	X	X	X		
Nursing (A.A.S.)		X			
Occupational Safety and Health Technology (A.A.S.)	X				
*Office Administration & Management (A.A.S.)	X				
Physical Therapist Assistant (A.A.S.)		X			
Police Science (A.A.S. & Certificate)	X	X		X	X
Real Estate (A.A.S.)		X		X	
Real Estate (Certificate)		X		X	
Recreation and Parks (A.A.S.)			X		
Recreation Vehicle — Motorcycle Maintenance (Certificate)	X			X	
Respiratory Therapy (A.A.S.)		X			
Science (A.S.)	X	X	X	X	X
Secretarial Science/Administrative Assistant (A.A.S.)	X	X	X	X	X
Secretarial Science/Executive Secretary (A.A.S.)	X	X	X	X	X
Secretarial Science/Legal Secretary (A.A.S.)	X	X			X
Secretarial Science/Medical Secretary (A.A.S.)	X	X			X
Secretarial Science/Office Systems (Certificate)					X
Security Administration (A.A.S.)	X	X		X	X
Technical Illustration (Certificate)	X				
Urban-Regional Planning & Development (A.A.S.)	X				
Welding (Certificate)				X	

*Pending Approval

ACCOUNTING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek employment in the accounting field or for those presently in accounting who desire to increase their knowledge and update their skills. The occupational objectives include: Accounting Trainee / Accounting Technician / Junior Accountant / Accountant.

Special Curriculum Admission Requirements. The student should possess a proficiency in high school English and a strong background in basic arithmetic.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Accounting Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT	111-112-113 Acct.	4	4	4
BUAD	100 Intro. to Bus.	3		
BUAD	121-122-123 Bus. Math	3	3	3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
GENL	100 Orientation	1		
BUAD	164-165 Prin. of Bus. Mgt.		3	3
PHED	100 Fund. of Phys. Act.		1	
DAPR	106 Prin. of Data Proc.		3	
DAPR	147 Comp. Prog. - COBOL (or Bus. Elect.)			3
*ECON	160 Amer. Econ.	3		
	Total Credits	17	17	16
	(Second Year)			
ACCT	221-222-223 Inter. Acct.	4	4	4
BUAD	241-242 Bus. Law	3	3	
BUAD	254 Appl. Bus. Stat.	3		
BUAD	246 Bus. Finance (or Bus. Elect.)	3		
ACCT	234 Cost. Acct.		3	
ACCT	241-242 Prin. of Fed. Tax.		3	3
ACCT	229 Auditing (or Bus. Elect.)			3
ACCT	298 Sem. & Proj. or ACCT 256 or Bus. Elect.			3
*PSYC	110 Prin. of Appl. Psyc.	3		
*GOVT	180 Amer. Const. Govt.		3	
PHED	Electives	1		1
	Total Credits	17	16	14

Total minimum credits for Accounting Major - A.A.S. Degree = 97

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 is selected.

AIR CONDITIONING AND REFRIGERATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Pending Approval

Purpose: This curriculum is designed to prepare students for jobs in the refrigeration and air conditioning field. The Occupational Objectives include: Service, maintenance, repair and installation of refrigeration and air conditioning equipment.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Air Conditioning and Refrigeration Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
AIRC	101-102-103 Prin. of Refrig.	4	4	4
AIRC	110 Prin. of Air Cond.			4
AIRC	111-112-113 Air Cond. & Refrig. Elec.	3	3	3
AIRC	199 Supervised Study	1	1	
*ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
MATH	118-119 Intro. to Tech. Math	5	5	
	Total Credits	17	16	14
	(Second Year)			
AIRC	211-212-213 Air Cond. Controls	3	3	3
AIRC	251-252-253 Air Cond. Systems	4	4	4
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*Soc. Sci. Elect.		3	3	3
[1]AIRC	Tech. Elect.	3	3	3
	Elective	3	3	3
	Total Credits	17	17	17

Total minimum credits for Air Conditioning and Refrigeration Major - A.A.S. Degree = 98

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]Technical Electives may be selected from Air Conditioning courses or closely related fields after consultation with faculty advisor.

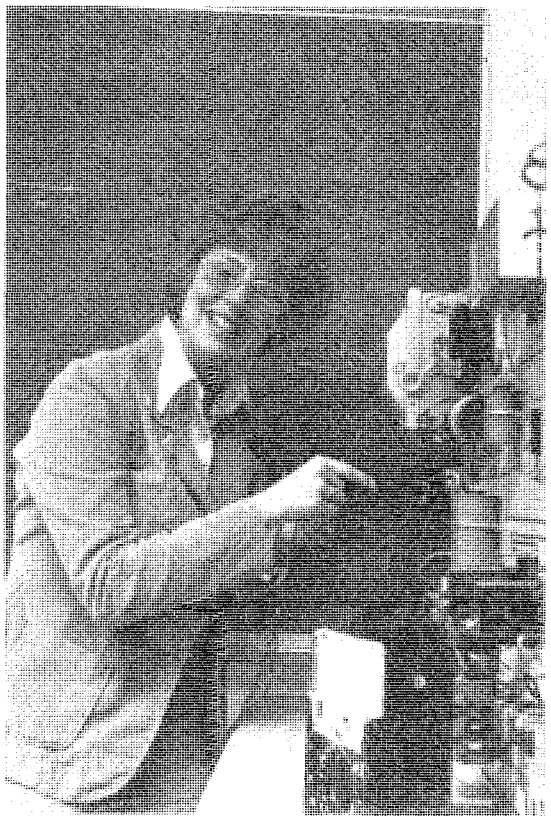
AIR CONDITIONING AND REFRIGERATION CERTIFICATE

Purpose: The certificate program is intended to prepare students for jobs in the refrigeration and air conditioning field. Upon successful completion of the program, the student is enabled to take full time employment. The occupational objectives include: Service, maintenance, repair and installation of refrigeration and air conditioning equipment.

Air Conditioning and Refrigeration Curriculum

		Credits			
		1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
AIRC	101-102-103 Prin. of Refrig.	4	4	4	
AIRC	114-115 Air Cond. & Ref. Elec.	3	3		
AIRC	120 Prin. of Heating				4
AIRC	131-132 Circuits & Controls			3	3
AIRC	154 Combustion Devices				3
AIRC	156 Clim. Control Heat Pump				3
AIRC	199 Supervised Study	1	1		
ENGL	100 Occup. Eng.		3		
MATH	118-119 Intro. to Tech. Math	5	5		
SOSC	101 Cont. Amer. Civ.	3			
	Air Cond. Elect.			3	
	Science Elect.			4	
	Non-Tech. Elect.				3
	Total Credits	16	16	14	16

Total minimum credits for Air Conditioning and Refrigeration Major Certificate = 62.



ANIMAL SCIENCE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The student will be trained as a veterinary medical technician. Satisfactory completion of the curriculum will make the student eligible to take State Board examinations for certification as an animal technician. The curriculum is designed for persons who wish to develop the latest techniques and skills that will prepare them for careers as veterinarian assistants and positions in diagnostic laboratories, research laboratories, institutional or pharmaceutical animal colonies, and as Federal or State livestock inspectors.

Special Curriculum Admission Requirements: Entry into the Animal Science Technology curriculum requires an interview by the Program Head.

Satisfactory completion of the following high school units or equivalent as a minimum: 1 unit of algebra, 2 units of lab science, preferably biology and chemistry, and proficiency in high school English.

Special Curriculum Completion Requirements: Because of the eventual certification process, it is necessary for students to maintain satisfactory progress in their course work. Periodic evaluation of each student will be made by the Program Head.

Animal Science Technology Curriculum

		Credits			
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
AGRI	116 Animal Breeds & Identification	3			
BIOL	156 Foundations of Zoology	4			
AGRI	155-156 Animal Anatomy & Physiology I & II		4	4	
ENGL	111-112 English Composition	3	3		
SPDR	136 Oral Comm.			3	
CHEM	101-102 General Chemistry I & II	4	4		
GENL	100 Orientation	1			
SECR	111 Typing I	3			
PHED	100 Fund. of Physical Act. & 2 Elect.		1	1	1
AGRI	151-152-153 Lab Techniques		1	4	4
AGRI	161-162 Clinical Practices			3	4
BIOL	164 Pathology				3
BIOL	158 Parasitology			3	
	*Social Sci. Elective		3		
	Total Credits	18	16	18	12
	(Second Year)				
AGRI	214 Animal Diseases	2			
AGRI	154 Lab Techniques			4	
AGRI	163-164 Clinical Practices w/lab	4		4	
	*Social Sci. Elective	3		3	
AGRI	215 Animal Diseases w/lab			2	
AGRI	219 Animal Pharmacology w/lab	4			
AGRI	290 Coord. Intern.		5		
AGRI	260 Animal Nutrition	3			
AGRI	298 Seminar and Project			2	
	Total Credits	16	5	15	

Total minimum credits for Animal Science Technology Major — A.A.S. Degree = 100.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

ARCHITECTURAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to prepare students for full-time employment in architectural offices or elsewhere in the construction industry. The occupational objectives include: Architectural Draftsman / Design Assistant / Specifications Assistant / Urban Design & City Planning Draftsman / Field Inspector.

Special Curriculum Admission Requirements: Proficiency in high school Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Architectural Technology Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
ARCH	111-112-113 Arch Drafting	3	3	3
ARCH	164-165 Matl & Meth of Constr.	3	3	
ARCH	171 Spec Writing			3
ARCH	204 History of Arch I (or ARCH 100)	3		
ARCH	205 History of Arch II [1](or Tech Elec)		3-4	
ARCH	210 Site Planning			3
ENGL	111-112 English Comp.	3	3	
ENGL	137 Tech Writing (or ENGL 113)			3
GENL	100 Orientation	1		
MATH	121-122 Engr. Tech Math	5	5	
ENGR	151 Mechanics (Statics)			4
	Total Credits	18	17-18	16
	(Second Year)			
ARCH	211-212-213 Arch Drafting	3	3	3
ARCH	237 Bldg Mech Equip	3		
ARCH	236 Bldg Elec Equip		3	
ARCH	276 Constr Estimating			3
ARCH	279 Critical Path Math Prog			3
*PHYS	111-112 Tech Physics	4	4	
**Social Science Electives		3	3	3
PHED	100 Fund of Phys Activity	1		
PHED	Electives		1	1
ENGR	152-154 Mechanics (Strength) & Lab	4		
CIVL	217 Structural Steel Design		4	
CIVL	218 Reinf. Concrete Design			4
	Total Credits	18	18	17

Total minimum credits for Architectural Technology major A.A.S. Degree = 100

**Social Science Electives sequences: GOVT 180 + ECON 160 + PSYC 110, ECON 211-212-213, GEOG 240-250-260, GOVT 281-282-283, HIST 101-102-103, HIST 111-112-113, HIST 187-188-189, HIST 221-222-223, PSYC 201-202-203, PSYC 231-232-233, SOSC 121-122-123, SOCI 101-102-103, 211-212-213

*Science alternates: CHEM 101-102, GEOL 101-102, NASC 121-122

[1]Technical electives: any two ARCH or CIVL courses not required in the program, or, ARTS 124-125, ARTS 154-155.

ART/COMMERCIAL ART

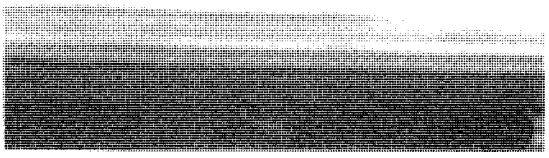
ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full time employment in the Commercial Art field immediately upon completion of the program. The occupational objectives include: Commercial Artist / Designer / Illustrator / Photographer.

Special Curriculum Admission Requirements: Proficiency in high school English and a satisfactory aptitude for drawing. Applicants may be required to submit a portfolio before final admission is granted.

Special Curriculum Completion Requirements: After completion of the first year the students' work will be reviewed to ascertain that development is sufficient to enter the Commercial Art field. The student will then choose an area of concentration for the second year from one of the following fields: Advertising Design, Illustration or Photography.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.



Commercial Art Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
ARTS	124-125-126 Drawing	4	4	4
ARTS	154-155-156 Design	3	3	3
ARTS	170 Intro. to Graphic Skills	3		
*ARTS	171 Typography			3
ARTS	183 Intro. to Photo.		3	
ARTS	240 History of Design			3
ARTS	248-249 Visual Communications I-II		3	3
ENGL	111-112 Eng. Comp.	3	3	
PHED	100 Fund. of Phys. Act. + 2 Elect.	1	1	1
GENL	100 Orientation	1		
	Total Credits	15	17	17

*Arts 291 Adv. Photo. I (will be taken in the first year by Photo. majors instead of Typography).

AREAS OF CONCENTRATION

(Second Year)

Advertising Design Major

ARTS	261-262-263 Advertising Design	3	3	3
ARTS	271-272-273 Graphic Tech.	3	3	3
ARTS	172-173 Typography	3	3	
**ARTS	Art Electives	0-3	3-6	3
ARTS	298 Seminar & Project			3-5
*ENGL	113 Engl. Comp.	3		
*SOSC	Electives	3	3	
	Total Credits	15-18	15-18	15-17

Illustration Major

ARTS	266-267-268 Illustration	3	3	3
ARTS	227-228-229 Adv. Drawing	3	3	3
ARTS	271 Graphic Tech. I	3		
**ARTS	Art Electives	0-3	3-4	
ARTS	Painting or Printmaking Elect.		3-4	3-4
ARTS	298 Seminar & Project			3-5
*ENGL	113 Engl. Comp.	3		
*SOSC	Electives	3	3	3
	Total Credits	15-18	15-17	15-18

Commercial Photography Major

ARTS	214-215 Studio Lighting I & II	3	3	
ARTS	216-217 Commercial Photo. I & II		3	3
ARTS	184 or 185 Hist. of Photo. I		3	
ARTS	271 Graphic Tech. I	3		
ARTS	171 Typography I	3		
ARTS	Photo. Electives	0-3	3	3
ARTS	Art or Photo. Elect.		0-3	3
ARTS	298 Seminar & Project			3-5
*ENGL	113 Engl. Comp.	3		
*SOSC	Electives	3	3	3
	Total Credits	15-18	15-18	15-17

Total minimum requirements for Commercial Art Major A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

**Electives should be chosen from courses offered in the Commercial Art Curriculum. Students transferring to a 4 year college may be required to take History and Appreciation of Art 111-112-113 if required by that college.

ART EDUCATION

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts in Art Education major curriculum is designed for students who plan to transfer to a four-year program in a professional art school or to a college or university baccalaureate degree program in Art Education.

Special Curriculum Admission Requirements: Entry into the Art Education Curriculum requires a satisfactory aptitude in visual art and applicants may be required to submit a portfolio for placement.

Art Education Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS	111-112-113 Hist. & Appre. of Art	3	3	3
ARTS	124-125-126 Drawing	4	4	4
ARTS	154-155-156 Design	3	3	3
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.		1	1
	[1]Soc. Sci. Elect.	3	3	3
	Total Credits	17	17	17
	(Second Year)			
ARTS	251-252-253 Adv. Design	3	3	3
ARTS	Approved Studio Elect.	4	4	4
[2]ENGL	Amer., Eng., or World Lit.	3	3	
[3]PHED	Phys. Act. Elect.			1
	Nat. Sci. (with Lab.)	4	4	4
	Electives		4	3
	Total Credits	14	18	15

[1]Total minimum credits for Art Education Major - A.A. Degree = 97

[2]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[3]Science courses may be selected from Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

ART/FINE ART AND FINE ART PHOTOGRAPHY

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts in Fine Arts and Fine Art Photography major curricula are designed for students who plan to transfer to a four-year program in a professional school or to a college or university baccalaureate degree program in Fine Arts.

Special Admission Requirements: Entry into Fine Arts, Art Education, or Fine Art Photography requires a satisfactory aptitude in visual art, and applicants may be required to submit a portfolio for placement.

Fine Arts Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ARTS	111-112-113 History & Appre. of Art	3	3	3
ARTS	124-125-126 Drawing	4	4	4
ARTS	154-155-156 Design	3	3	3
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
[1]Soc. Sci. Elect.		3	3	3
	Total Credits	17	17	17
	(Second Year - Fine Arts)			
ARTS	227-228-229 Adv. Drawing	3	3	3
ARTS	251-252-253 Adv. Design	3	3	3
ARTS	Approved Studio Elect.	4	4	4
ENGL	Amer., Eng. or World Lit.	3	3	
PHED	Phys. Act. Elect.	1		
[2]Electives			5	5
	Total Credits	14	18	15

Total minimum credits for Fine Arts Major - A.A. Degree = 97

	(Second Year - Fine Art Photography)			
ARTS	184-185 History of Photography	3	3	
ARTS	298 Sem. & Proj.			3
ARTS	Approved Studio Elective	3	4	4
ARTS	Photography Electives	3	3	6
[1]Soc. Sci. Elect.		3	3	3
ENGL	American, English or World Lit.	3	3	
PHED	Phys. Act. Elect.	1		
	Total Credits	16	16	16

Total minimum credits for Fine Art Photography Major - A.A. Degree = 97

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

*Photography majors take Social Science electives in the second year. First year required courses are ARTS 183, 291, 292.

ART HISTORY

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate of Arts in Art History Major curriculum is designed for students who plan to transfer to a college or university baccalaureate degree program in Art History.

Art History Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
ARTS	111-112-113 Hist. & Appre. of Art	3	3	3
ARTS	124-125-126 Drawing	4	4	4
ARTS	154-155-156 Design	3	3	3
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	[1]Soc. Sci. Elect.	3	3	3
	Total Credits	17	17	17
	(Second Year)			
ARTS	200 Intro. to Prim. Arts or approved Art Hist. Elect.	3		
PHIL	216 Aesthetics, Arch. 204, Hist. of Arch. or Approved Art Hist. Elect.		3	
ARTS	206 Growth of Amer. Art or approved Art Hist. Elect.			3
ARTS	211-212-213 Painting or approved Studio Elect.	4	4	4
ENGL	271-272-273 World Lit.	3	3	3
[2]Foreign	Language	4	4	4
	Phys. Act. Elect.	1		
[3]Elective			3	
	Total Credits	15	17	14

Total minimum credits for Art History Major - A.A. Curriculum = 97

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]The Language course may be either the first or second year sequence depending on the student's prior knowledge. French and German are preferred.

[3]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

AUTOMOTIVE BODY RECONDITIONING

CERTIFICATE

Purpose: The curriculum is intended to prepare people for immediate employment in automotive body repair work. The curriculum provides experience in evaluation, repair and refinishing of automotive body damage. Occupational objectives include: Automotive Body Refinisher / Automotive Sheet Metal Repairman / Automotive Frame Repairman / Damage Estimator / Auto Body Analyst.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

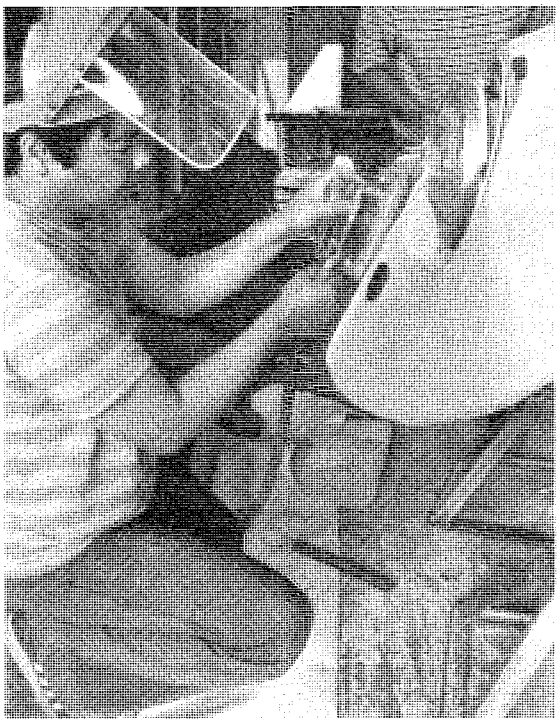
Automotive Body Reconditioning Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO	100 Auto Shop Pract. & Sfty.	3		
AUTO	160 Basic Sheet Metal Op.	4		
ENGL	100 Occup. Eng.	3		
WELD	115 Arc & Gas Welding	4		
AUTO	167 Auto Body Repair		4	
AUTO	168 Auto Sheet Metal Prep.		4	
	Tech. Elective		3-4	3-4
AUTO	165 Auto Painting			4
AUTO	169 Auto Frame Repair			4
	[2]Elect.			3
	Soc. Sci. Elective		3	
	Total Credits	14	14-15	14-15

Total minimum credits for Automotive Body Reconditioning Major Certificate = 42.

[1]Pre or Co-Requisite to all Automotive Shop Courses.

[2]Suggested Elective MATH 151



AUTOMOTIVE DIAGNOSIS AND TUNE-UP

CERTIFICATE

Purpose: The curriculum is designed to provide theory and experience and further development for mechanics not having had other educational automotive training. Also to provide a one-year entry program for students desiring auto-mechanics training in diagnosis and tune-up. The occupational objectives include: Tune-up Technician/Service Station General Repair.

Special Curriculum Admission Requirements: One year automotive shop or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Automotive Diagnosis and Tune-Up Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO	100 Auto Shop Pract. & Safety	3		
AUTO	284-285 Auto Ser. Proc. & Tune-Up	3	3	
AUTO	121-122 Auto Fuel Systems	4	4	
ENGL/SPDR	Elective	3	3	
MATH	118 Intro. to Tech. Math		5	
AUTO	267 Suspension & Braking			4
AUTO	268 Auto Alignment			2
DRFT	144 Auto Drawing Inter.			2
AUTO	198 Sem. & Proj.			2
PSYC	128 Human Relat.			3
	Total Credits	13	15	13

Total minimum credits for Auto Diagnosis and Tune-Up Major - Certificate = 41.

[1]Pre or Co-Requisite to all automotive shop courses

AUTOMOTIVE ELECTRICAL TECHNICIAN

CERTIFICATE — PENDING APPROVAL

Purpose: This curriculum is designed for persons who seek full-time employment in automotive electrical specialty or electrical rebuild shops. The curriculum includes the necessary theory and shop experience to advance the student to a level of competence for immediate employment as an Automotive Electrical Technician or Automotive Electrical Component Rebuild Specialist.

Special Curriculum Admission Requirements: One year high school shop program or equivalent. Students not meeting these requirements may correct this deficiency by successfully completing AUTO 100-Auto. Shop Practices, and AUTO 128-Auto Mechanics.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education.

Automotive Electrical Technician Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
*AUTO	120 Intro. to Auto Mach. Shop	4		
AUTO	241-242-243 Automotive Electricity I-II-III	4	4	4
AUTO	Automotive Electrical Component Rebuild I-II	4	4	
ENGL/SPDR	English or Speech Elective	3		
MATH	118-119 Intro. to Tech. Math I-II		5	5
AUTO	286-287 Shop Mgt. & Cust. Relations I-II		3	3
AUTO	Automotive Electronics			4
	Total Credits	15	16	16

Total Minimum Credits for Automotive Electrical Technician Certificate = 47

*AUTO 120 must be taken prior to or concurrent with any auto lab. course.

AUTOMOTIVE MACHINIST
CERTIFICATE

Purpose: This curriculum includes the necessary theory and machine shop experience to bring the beginning students to a level of competency so that they are ready for full-time employment as beginning automotive machinists or heavy equipment machinist. The occupational objectives include: Automotive Machinists / Motorcycle Engine Machinist / Heavy Equipment Machinist.

Special Curriculum Admission Requirements: Automotive shop or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information see page 33.

Automotive Machinist Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO	120 Intro. to Auto Mach. Shop	4		
AUTO	107 Disassembly & Inspect.	3		
ENGL	100 Occup. Eng.	3		
MATH	118 Intro. to Tech. Math	5		
AUTO	118 Auto Turning Oper.		4	
AUTO	114 Auto Cyl. Block Serv.		4	
INDT	176 Indus. Safety or HLTH 146		2-3	
	Humanities or Soc. Sci. Elect.		4	
AUTO	115 Cyl. Head Ser.			4
AUTO	119 Crankshaft, Camshaft, & Connect. Rod Serv.			4
AUTO	109 Fabr. Tech.			3
AUTO	197 Coop. Ed.			3
	Total Credits	15	14-15	14

Total minimum credits for Automotive Machinist Major - Certificate = 43

[1]Pre or Co-requisite to all auto machinist courses.

AUTOMOTIVE PARTS MERCHANDISING
CERTIFICATE

Purpose: The curriculum is designed to train automotive parts salespeople by providing experience in auto-mechanics, merchandising and parts management. Occupational objectives include: Auto Parts Clerk / Auto Counterman / Auto Parts Deliveryman.

Special Curriculum Admission Requirements: One year high school shop program or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Automotive Parts Merchandising Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
[1]AUTO	100 Auto Shop Pract. & Safety	3		
AUTO	121 Auto Fuel Sys.	4		
AUTO	284-285 Auto Serv. Proced. & Tune-Up	3	3	
SPDR	136 Oral Comm.	3		
AUTO	201 Auto Sys. Tech.	4		
AUTO	134-135 Auto Inside-Outside Salesman		3	3
AUTO	197 Coop. Ed.		3	3
BUAD	100 Intro. to Bus.		3	
PSYC	128 Human Relat.		3	
AUTO	267 Suspen. & Braking			4
ECON	160 Amer. Econ.			3
AUTO	136 Lub. & Cooling			3
	Total Credits	17	15	16

Total minimum credits for Automotive Parts Merchandising Major - Certificate = 48

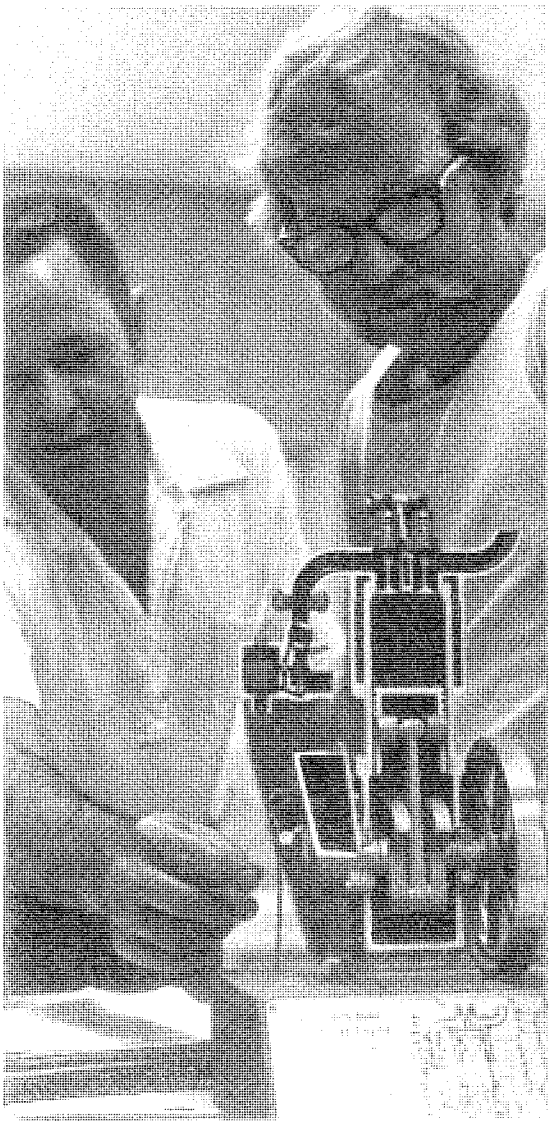
[1]AUTO 100 must be taken prior to or concurrent with any auto laboratory course.

AUTOMOTIVE TECHNOLOGY

Purpose: This curriculum is designed to train technicians in the automotive field. People completing this program will be ready for full-time employment as automotive diagnosticians or automotive mechanics according to the specialization selected. The occupational objectives included: Line Mechanic / New Car Make-ready / Tune-Up Specialist / Diagnostician / Customer Service Representative / Service Manager.

Special Curriculum Admission Requirements: Auto shop or equivalent. Student must pass an Automotive Proficiency Exam or successfully complete AUTO 128.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.



Automotive Technology Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
*AUTO	100 Auto Shop Practice & Safety	3		
AUTO	111-112-113 Auto Engines	4	4	4
AUTO	241-242-243 Auto Elec.	4	4	4
*ENGL	111-112 Eng. Comp.		3	3
MATH	118-119 Intro. to Tech. Math	5	5	
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
*GOVT	180 Amer. Const. Govt.			3
	Total Credits	17	17	15
	(Second Year - Automotive Mechanics)			
AUTO	126 Anti-Pollution Systems			4
AUTO	151-152 Power Trains	4	4	
AUTO	238 Auto Air Cond.			3
AUTO	267 Auto Susp. & Braking			4
AUTO	268 Steering & Alignment		3	
AUTO	298 Sem. & Proj.			2
	Electives - Automotive		3	2
PHED	Phys. Act. Elect.			1
*SPDR	136 Oral Comm.	3		
*PSYC	128 Human Relat.	3		
*ECON	160 Amer. Econ.		3	
AUTO	121-122 Auto Fuel Systems	4	4	
DRFT	144 Auto Drawing Interp.	2		
	Total Credits	16	17	16

Total minimum credits for Automotive Mechanics Major - A.A.S. Degree = 97

	(Second Year - Automotive Diagnostician)			
AUTO	151-152 Power Trains	4	4	
AUTO	267 Auto Susp. & Braking			4
AUTO	268 Steering & Alignment		3	
AUTO	281-282 Auto Diag. Tech.		3	3
AUTO	287-288 Auto Shop Mgt.		3	3
AUTO	298 Sem. & Proj.			2
	Electives - Automotive		5	4
PHED	Phys. Act. Elect.			1
*PSYC	128 Human Relat.	3		
*ECON	160 Amer. Econ.	3		
*ENGL	137 Tech. Writing	3		
AUTO	181 Auto. Diag. Tech.	3		
	Total Credits	16	18	17

Total minimum credits for Automotive Diagnostician Major - A.A.S. Degree = 97

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

Business courses, cooperative education, or AUTO 134-135 may be substituted for AUTO 287-288.

*Pre or Co-requisite to all Automotive Shop courses.

AVIATION TECHNOLOGY/ AIR TRAFFIC CONTROL

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The Curriculum is designed to provide the students with a sound basic knowledge in Aviation which will prepare them to pass the Civil Service Exam for entry into the occupational field of Air Traffic Control. Employment and advancement training are with the Federal Aviation Administration (FAA). Successful completion of the curriculum will normally prepare the student to take the entrance exams for the FAA Air Traffic Control Training Program. Final acceptance of the student for the FAA program is determined by FAA examinations and standards. The Federal Government is the sole employer.

Special Curriculum Admission Requirements: Proficiency in High School Mathematics (Algebra I & Albegra II or Geometry) and acceptance by the Program Head following a personal interview.

Coordinated Internship: Students will find it highly desirable to enroll in a Coordinated Internship experience during one or all quarters of the second year if possible.

Air Traffic Control Curriculum

	(First Year)	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	111-112 Engl. Comp.	3	3	
*SPDR	136 Oral Comm.			3
**MATH	181-182-183 General College Math	3	3	3
GENL	100 Orientation	1		
*PSYC	110 Prin. of Appl. Psyc.	3		
*PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
AERO	110 History of Air Trans.	3		
AERO	176 Primary Flight (Optional)	(1)	(1)	(1)
AERO	126 Aviation in the U.S.		3	
AERO	127 Fund. of Flight		3	
AERO	136 The Nat. Airspace System			3
AERO	137 Aviation Safety			3
SOCI	101 Intro. Soc.		3	
[1]SECR	111 Typewriting			3
	Elective	3		
	Total Credits	17	16	16

**MATH 161-162-163 or MATH 191-192-193 may be substituted for MATH 181-182-183.

	(Second Year)	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
DAPR	106 Prin. of Data Processing	3		
AERO	246 Meteorology	4		
AERO	247 Aviation Laws & Regulation	3		
MKTG	131 Traffic & Transportation or elect.	3		
PHYS	111 Tech. Phys.	4		
BUAD	110 Human Relat. & Ldrshp. Tng.			3
BUAD	254 Appl. Bus. Statistics		3	
*ECON	160 Amer. Econ.			3
ENGR	121 Eng. Graphics		2	
GEOG	240 Intro. to Phys. Geog. or elect.		3	
*GOVT	180 Amer. Const. Govt.			3
AERO	256 Air Navigation		3	
AERO	257 Radar, Radio Aids & Comm.		4	
AERO	266 Airport Oper. & Mgt.			3
AERO	298 Sem. & Proj.			3
AERO	299 Supervised Study or elect.			3
	Total Credits	17	15	18

Total minimum credits for Air Traffic Control Major A.A.S. Degree = 97

[1]Students proficient in typing may petition for waiver with credit by examination.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

AVIATION TECHNOLOGY/ AVIATION ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare graduates to pursue a career in the non-technical field of aviation. The occupational objectives include: Transportation Agent / Reservations Sales Agent / Assistant Airport Manager / Operations Officer / Reservation Assistant / Airline Office Manager / Service Manager / Customer Relations.

Special Curriculum Admission Requirements: A strong background in basic Arithmetic and acceptance by the Program Head following a personal interview.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Aviation Administration Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
BUAD	121-122-123 Bus. Math	3	3	3
GENL	100 Orientation	1		
*PSYC	110 Prin. of Appl. Psyc.	3		
AERO	110 History of Air Trans.	3		
AERO	176 Primary Flight (Optional)	(1)	(1)	(1)
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
AERO	126 Aviation in the U.S.		3	
AERO	136 The Natl. Airspace Sys.			3
AERO	137 Aviation Safety	3		
BUAD	100 Intro. to Bus.		3	
BUAD	164 Prin. of Bus. Mgt.			3
SOCI	101 Intro. Soc.		3	
[1]SECR	111 Typewriting			3
	Total Credits	17	16	16
	(Second Year)			
ACCT	111-112 Accounting	4	4	
BUAD	110 Human Relat. & Ldrshp. Tng.			3
BUAD	254 Appl. Bus. Statistics		3	
*ECON	160 Amer. Econ.			3
DAPR	106 Prin. of Data Processing	3		
GEOG	240 Intro. to Phys. Geog.		3	
*GOVT	180 Amer. Const. Govt.			3
AERO	247 Aviation Laws & Reg.	3		
AERO	248 Aircraft Support Oper.	4		
AERO	258 Airline Marketing		3	
AERO	266 Airport Oper. & Mgt.			3
AERO	298 Sem. & Proj.			3
AERO	299 Supervised Study			3
MKTG	109 Prin. of Salesmanship	3		
MKTG	131 Traffic & Trans.		3	
	Total Credits	17	16	18

Total minimum credits for Aviation Administration Major - A.A.S. Degree = 97

[1]Students proficient in typing may petition for waiver with credit by examination.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

AVIATION TECHNOLOGY/ FLIGHT ATTENDANT

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to compete for Flight attendant jobs in the field of aviation and prepare for full-time employment with the airlines and for airports in non-flying jobs. Occupational objectives include: Steward / Stewardess / Customer Service Representative / Travel Agent.

Special Curriculum Admission Requirements: Students are advised to determine both special and general qualifications for employment as Flight attendants prior to entering this curriculum. Information can be obtained from Aviation Technology faculty or counselor.

Flight Attendant Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	100 Occup. Eng.	3		
GENL	100 Orientation	1		
GEOG	240 Intro. to Phys. Geography			3
HLTH	104 First Aid		2	
PSYC	128 Human Relat.	3		
SPDR	136 Oral Comm.			3
SOCI	106 Gen. Soc.			3
AERO	110 Hist. of Air Trans.	3		
AERO	126 Aviation in the U.S.		3	
AERO	136 The Natl. Airspace Sys.		3	
AERO	140 Flt. Attendant's Orient.	3		
AERO	146 Flt. Attendant's Duties & Resp.		3	
AERO	147 Flt. Attendant's Grooming & Apparel			3
AERO	176 Primary Flight (Optional)	(1)	(1)	(1)
AERO	258 Airline Marketing		3	
AERO	266 Airport Oper. & Mgt.			3
	Elective	3	3	3
	Total Credits	16	17	18

Total minimum credits for Flight Attendant Major Certificate = 51

BANKING AND FINANCIAL MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed specifically to accomplish two purposes: (1) to prepare students to enter employment in a variety of careers related to the field of finance and (2) to provide those now employed in the field of finance an opportunity to upgrade their skills and enhance their careers. The occupational objectives include positions in Retail Credit Banking, Savings and Loan Associations, Finance Companies, Mortgage Companies and Investment Companies.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: After completion of 3 quarters, students may elect to participate in a maximum of 15 credits of BUAD 297 Cooperative Education, with the approval of an advisor. For further information, see page 33.

Banking and Financial Management Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ACCT	211-212-213 Accounting	3	3	3
BUAD	121-122-123 Bus. Math	3	3	3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
BUAD	100 Intro. to Bus.	3		
*ECON	160 American Economics	3		
GENL	100 Orientation	1		
BUAD	164 Prin. of Bus. Mgt.		3	
*GOVT	180 Amer. Const. Govt.		3	
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
BUAD	157 Prin. of Bank Operations			3
DAPR	106 Prin. of Data Processing			3
	Total Credits	16	16	16
	(Second Year)			
ACCT	146 Analyzing Fin. Statements	3		
BUAD	110 Human. Relat. & Ldrshp. Tng.	3		
[1]BUAD	158 Bank Ltrs. & Rpts.	3		
BUAD	241-242 Bus. Law	3	3	
ECON	241 Money & Banking	3		
MKTG	100 Prin. of Marketing	3		
BUAD	246 Bus. Finance		3	
[1]BUAD	256 Trust Functions & Services		3	
[1]BUAD	258 Installment Credit		3	
*PSYC	110 Prin. of Applied Psyc.		3	
PHED	Phys. Act. Elect.		1	
[1]BUAD	247 Bank Investments			3
BUAD	254 Appl. Bus. Statistics			3
[1]BUAD	268 Bank Mgt.			3
BUAD	266 Financial Mgt.			3
BUAD	298 Sem. & Proj.			3
	Total Credits	18	16	15

Total minimum credits for Banking and Financial Management Major - A.A.S. Degree = 97

[1]Other Finance related courses may be substituted with division approval.

*For further explanation of English and Social Science Course requirements for A.A.S. Degrees, see page 35.

BROADCAST ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for employment as Engineering Technicians in the broadcasting industry. The occupational objectives include: Commercial or Educational Radio or TV Station Technician / Video Tape Station Technician / Recording Company Technician.

Special Curriculum Admission Requirements: High school Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Broadcast Engineering Technology Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.	1	1	
*ENGL	111-112 Eng. Comp.	3	3	
MATH	121-122 Engr. Tech. Math	5	5	
ELEC	114-115 Fund. of D.C. & A.C.	4	4	
ELEC	116 Intro. to Circuit Analysis			4
ELEC	120 Intro. to Tubes & Transistors	4		
ELEC	125 Intro. to Electronics		5	
ELEC	126 Amplifiers			5
PHYS	111 Tech. Phys.			4
BCST	116 Bcst. Equip. Oper.			5
	Total Credits	18	18	18
	(Second Year)			
PHED	Elective			1
PHYS	112 Tech. Phys.	4		
*SPDR	136 Oral Comm.		3	
*Soc. Sci. Elect.		3	3	3
BCST	126 Broadcast Instr. & Meas.	4		
BCST	146 Fed. Broadcast Reg.		1	
BCST	211-212 Theory of Broadcast Equip.		4	4
BCST	224-225 Broadcast Equip. Maint.		3	3
BCST	298 Sem. & Proj. or Coop. Ed.			1
ELEC	227 Pulse & Switching Circuits	3		
ELEC	241-242-243 Communications	4	4	4
ELEC	287 Adv. Circuits & New Devices			2
	Total Credits	18	18	18

Total minimum credits for Broadcast Engineering Technology Major - A.A.S. Degree = 108.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

BUILDING CONSTRUCTION TECHNOLOGY

CERTIFICATE

Purpose: The curriculum is designed for persons who seek full-time employment in building construction and related fields or for those presently employed persons in the construction trades who are seeking promotion. The occupational objectives include: Engineering Aide / Construction supervisor / Building Maintence Supervisor / Construction Project Manager / Estimator.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Building Construction Technology Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	111-112	3	3	
SPDR	136 Oral Comm.			3
MATH	118-119 Intro. to Tech. Math	5	5	
ENGR	100 Intro. to Engr. Tech.	3		
ARCH	111-112-113 Arch. Draft.	3	3	3
ARCH	164-165 Matl. & Meth. of Constr.		3	3
CIVL	140 Constr. Planning			3
CIVL	181 Surveying			4
	Soc. Sci. Elect.	3	3	
	Total Credits	17	17	16
	(Second Year)			
ARCH	237 Bldg. Mech. Equip.	3		
ARCH	236 Bldg. Elec. Equip.		3	
ARCH	277 Bldg. Codes & Contracts Docu.		3	
ARCH	279 Critical Path Meth. Prog.			3
BLDG	234 Matl. Take-Off	3		
BLDG	235 Cost, Est.			3
BUAD	276 Personnel Mgt.		3	
CIVL	182 Surveying	4		
CIVL	227-228 Structural Draft.		2	2
CIVL	246-247 Soils Mechanics	4		
CIVL	254-257 Civl Matl. (Concrete)		4	
CIVL	297 Coop. Ed.			2-4
CIVL	298 Sem. & Proj.			2
INDT	176 Indus. Safety	2		
	Total Credits	16	15	12-14

Total minimum credits for Building Construction Technology Major- Certificate = 88.

BUSINESS ADMINISTRATION

ASSOCIATE IN SCIENCE DEGREE

Purpose: The Associate in Science degree curriculum in Business Administration is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in business administration.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English; 2 units of mathematics (algebra and geometry); 1 unit of laboratory science; 1 unit of social studies.

Business Administration Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
BIOL	101-102-103 Gen. Biol. or CHEM 101-102-103	4	4	4
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
HIST	101-102-103 Hist. of West. Civ. or HIST 111-112-113	3	3	3
MATH	161-162-163 College Math or MATH 181-182-183 or MATH 191-192-193	3	3	3
PHED	100 Fund. of Phys. Act.		1	
	[1]Electives	3	3	3
	Total Credits	17	17	16
	(Second Year)			
ACCT	211-212-213 Prin. of Acct.	3	3	3
ECON	211-212-213 Prin. of Econ.	3	3	3
ENGL	Amer., Eng., or World Lit.	3	3	3
PHED	Phys. Act. Elect.		1	1
	[1]Electives	6	6	6
	Total Credits	15	16	16

Total minimum credits for Business Administration Major - A.S. Degree = 97.

[1]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

BUSINESS MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek employment in business management or for those presently in management who are seeking promotion. The occupational objectives include: Administrative Assistant / Management Trainee / Department Head / Branch Manager / Office Manager / Manager of Small Business / Supervisor.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Business Management Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
[1]ACCT	111-112-113 Accounting	4	4	4
BUAD	100 Intro. to Bus.	3		
BUAD	164-165 Prin. of Mgt.		3	3
BUAD	121-122-123 Bus. Math	3	3	3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
*ECON	160 Amer. Econ.	3		
*PSYC	110 Prin. of Appl. Psyc.		3	
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act.		1	
*GOVT	180 Amer. Const. Govt.			3
	Total Credits	17	17	16
	(Second Year)			
[2]BUAD	241-242-243 Bus. Law	3	3	3
BUAD	254 Appl. Bus. Stat.	3		
[3]SECR	111 Typewriting or Bus. Elect.	3		
PHED	Phys. Act. Elect.	1		1
MKTG	100 Prin. of Mkt.	3		
BUAD	269 Purchasing & Matl. Mgt.	3		
BUAD	246 Bus. Finance		3	
BUAD	276 Personnel Mgt.		3	
ACCT	241 Prin. of Fed. Tax.		3	
[4]Bus. Elect.			3	3
DAPR	106 Prin. of Data Processing			3
BUAD	110 Human Relat. & Ldrshp. Tng.			3
BUAD	298 Sem. & Proj.			3
	Total Credits	16	15	16

Total minimum credits for Business Management Major - A.A.S. Degree = 97.

*Substitutes for English and Social Science courses for an A.A.S. Degree are listed on page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

[2]Business Electives may be substituted for BUAD 243.

[3]Student may petition for credit by examination.

[4]Business Electives may be chosen from BUAD, DAPR, ACCT or MKTG Courses.

CIVIL ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for employment as an Engineering Technician, specializing in either Building Construction or Land Surveying. Occupational objectives include: Structural Designer / Surveying and Planning Assistant / Highways and building Departments Inspector / Construction Supervisor and Foreman / Civil Engineering Technician.

Special Curriculum Admission Requirements: High School Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Civil Engineering Technology Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
GENL	100 Orientation	1		
*ENGL	111-112 Eng. Comp.	3	3	
ENGL	137 Tech. Writing			3
MATH	121-122 Engr. Tech. Math	5	5	
ENGR	100 Intro. to Engr. Tech.	2		
ENGR	151 Mech. (Statics)			4
DRFT	111-112-113 Tech. Drafting or ARCH 111-112	2-3	2-3	0-2
ARCH	164-165 Matl. & Meth. of Const.		3	3
CIVL	181-182 Surveying		4	4
	*Soc. Sci. Elect.	3		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Total Credits	17-18	17-18	15-17
	(Second Year)			
PHED	Phys. Act. Elect.			1
PHYS	111-112-113 Tech. Phy.	4	4	4
ENGR	152-154 Mech. II and Mech. Lab.	4		
	*Soc. Sci. Elect.	3	3	
CIVL	246-247; 254-257 Soil Mech. & Concrete Tech. or CIVL 281-282	4	4	
CIVL	227-228 Struct. Draft. or Civl 201-202		2	2
CIVL	217-218 Steel Des. & Concrete Des. or Tech. Elec.	2-3	2-3 4	4
CIVL	Sem. & Proj. or Coop. Ed.			2
MATH	123 Engr. Tech. Math or CIVL 203			2-5
	Total Credits	17-18	17-18	13-16

Total minimum credits for Civil Engineering Technology Major - A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

CONSTRUCTION INSPECTION CERTIFICATE

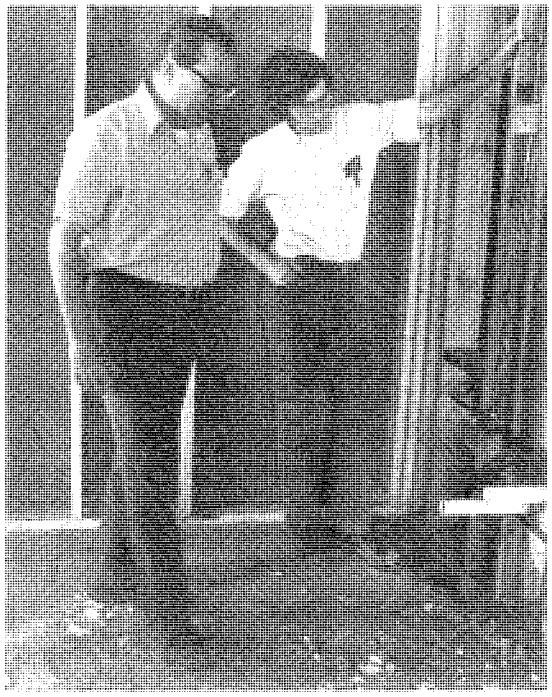
Purpose: The curriculum is designed for persons who seek full-time employment in areas of construction inspection or for those presently employed who are seeking advancement and further training. The occupational objective is one of the areas of construction inspection.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Construction Inspection Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
BLDG	100 Intro. to Constr. Insp. & Sfty.	3		
BLDG	111 Prin. of Res. Bldg. Constr. Insp.	3		
BLDG	107 Plan Review & Bldg. Codes	3		
MATH	118-119 Intro. to Tech. Math	5	5	
ENGL	100 Occup. Eng.	3		
ENGL	137 Tech. Writing			3
BLDG	112 Prin. of Concrete & Concrete Constr.		3	
BLDG	121 Prin. of Elec. Insp.		3	
CIVL	246-247 Soil Mech. & Soil Mech. Lab		4	
BLDG	113 Prin. of Steel Frame Constr. Insp.			3
BLDG	122 Prin. of Mech. Insp.			3
BLDG	123 Prin. of Plumbing Insp.			3
BLDG	197 Coop. Ed.			2-4
	Total Credits	17	15	14-16

Total minimum credits for a Construction Inspection Major - Certificate = 46.



CONSTRUCTION MANAGEMENT TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to qualify personnel in both engineering technology and management for employment in all areas of a construction firm. Occupational objectives include: Engineering Aide / Construction Project Manager / Construction Supervisor / Estimator / Building Maintenance Supervisor.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Construction Management Technology Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
*ARCH	111-112 Arch Draft.	3	3	
*ENGL	111-112 Eng. Comp.	3	3	
SPDR	136 Oral Comm.			3
GENL	100 Orientation	1		
MATH	118-119 Intro. to Tech. Math	5	5	
ENGR	100 Intro. to Engr. Tech.	2		
	Soc. Sci. Elect.	3	3	3
ARCH	164-165 Matl. & Meth. for Const.		3	3
CIVL	181 Surveying			4
CIVL	140 Const. Planning			3
	Total Credits	17	17	16
	(Second Year)			
CIVL	182 Surveying	4		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
ARCH	237 Bldg. Mech. Equip.	3		
CIVL	246-247 Soils Mech. & Lab.	4		
INDT	176 Indust. Safety	2		
	Elective	3		
CIVL	227-228 Struct. Draft		2	2
BUAD	276 Personnel Mgt.		3	
ARCH	277 Bldg. Codes & Contract Docu.		3	
CIVL	254, 257 Civil Matl. (Concrete)		4	
ARCH	236 Bldg. Elect. Equip.		3	
ARCH	279 Critical Path Meth. Prog.			3
ARCH	276 Constr. Est.			3
CIVL	297 Coop. Ed.			2-4
CIVL	298 Sem. & Proj.			2
	Total Credits	17	16	13-15

Total minimum credits for Construction Management Technology Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

CORRECTIONS SCIENCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide a broad foundation which will prepare the student to enter into full-time employment in any of the varied fields of correction; i.e., probation, penology, parole, and to those presently in a Corrections position who are seeking promotion. Occupational objectives include: Local, State, and Federal Corrections Officer / Probation and Parole Aide.

Special Curriculum Admission Requirements: Students must participate in a personal interview with a Police Science-Corrections Faculty Member. Students are advised that many criminal justice agencies require excellent moral character and a written record of conduct prior to consideration for employment. This curriculum is included under the Safe Streets Act of 1968 for L.E.E.P. grants and loans. See Financial Aids Counselor for further details. Program adjustments may be made with faculty approval to enable a student to transfer to a four year criminal justice program.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Corrections Science Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ADJU	120 Intro to Corrections (Corr)	3		
ADJU	126 Prevention & Control of Juvenile Deliquency		3	
ADJU	128 Criminal Behavior		3	
ADJU	129 Treatment of the Offender			3
ADJU	156 Corr. & the Community			3
ADJU	176 Criminology		3	
ADJU	237 Administration of Justice	3		
ADJU	287 Principles of Probation & Parole			3
GENL	100 Orientation	1		
*ENGL	111-112-113 English Comp. I, II, III	3	3	3
*SOCI	101-102-103 Introductory Sociology	3	3	3
PHED	Fund. of PHED & 2 Elect	2	1	
	Total Credits	15	16	15
	(Second Year)			
ADJU	124-125 Jail Opr. & Management		3	3
ADJU	155 Assessment of Corr. Process		3	
ADJU	159 Legal Challenge to Corr.	3		
[1]ADJU	157 Assessment of Criminology	3		
ADJU	289 Corr. Counseling	3		
ADJU	290/297 Coord. Intern or Coop		3	
ADJU	298 Seminar & Project			3
SOSC	121-122-123 Current American Social Problems I, II, III	3	3	3
PSYC	201-202-203 Genl. Psyc. I, II, III	3	3	3
ELEC	Approved Electives	3	3	3
	Total Credits	18	18	15

Total minimum credits for Corrections Science Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]Substitution for this course can be made subject to division approval.

CORRECTIONS SCIENCE

CERTIFICATE

Purpose: The certificate curriculum in corrections is designed for those students who wish to take principal courses which relate directly to the corrections field. Courses taken in the certificate program can be applied to the A.A.S. Degree.

Special Curriculum Admission Requirements: The same admission requirements apply as stated for the Corrections — A.A.S. Degree Curriculum.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Corrections Science Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
ADJU	120 Intro. to Corrections	3		
ADJU	176 Criminology	3		
ADJU	126 Prev. & Control of Juvenile Del.	3		
ADJU	128 Crim. Behavior			3
ADJU	159 Legal Challenge to Corrections		3	
ADJU	156 Correction & the Comm.			3
ADJU	129 Treat. of the Offender		3	
GENL	100 Orientation	1		
ENGL	111-112 Comm. Skills	3	3	
SOCI	101-102-103 Intro. Soc. (or PSYC 201-202-203)	3	3	3
SOSC	121-122 Curr. Amer. Soc. Prob.		3	3
SPDR	136 Oral Comm. (or Engl 113)			3
[1]ADJU	Elective			3
	Total Credits	16	15	18

Total minimum credits for a Corrections Major — Certificate = 49.

[1]Suggested ADJU Electives: 157, 237, 287.

DATA PROCESSING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is for persons who seek employment in the data processing field or for those presently in data processing who desire to increase their knowledge and update their skills. The occupational objectives include: Computer Programer / Computer Operator / Related data processing occupations.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and one unit of algebra or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Data Processing Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
DAPR	106 Prin. of Data Proc.	3		
DAPR	138 Computer Sys. Arch.		3	
DAPR	144 Computer Prog. (Problem Solving Using Computers) or DAPR equivalent		3	
DAPR	147 Computer Prog. (COBOL)			3
BUAD	100 Intro. to Bus.	3		
BUAD	164 Prin. of Bus. Mgt.			3
[1]ACCT	111-112-113 Accounting	4	4	4
*ENGL	111-112 Eng. Comp.	3	3	
GENL	100 Orientation	1		
MATH	101-102 Fund. of Math or BUAD 121-122 or Math Elect.	3	3	
PHED	100 Fund. of Phys. Act.	1		
*SPDR	136 Oral Comm.			3
*PSYC	110 Prin. of Appl. Psyc. or BUAD 110			3
	Total Credits	18	16	16
	(Second Year)			
DAPR	256 Computer Prog. (ADV COBOL)	4		
DAPR	281 System Analysis I	3		
DAPR	286 Computer Prog. Applicat.		4	
DAPR	287 Computer Software Sys.		3	
DAPR	298 Sem. & Proj.			5
DAPR	Computer Prog. Elect.		4	4
[2]BUAD	254-255 Appl. Bus. Statistics	3	3	
*ECON	160 Amer. Econ.	3		
*GOVT	180 Amer. Const. Govt.			3
PHED	Phys. Act. Elect.		1	1
	Electives	3		3
	Total Credits	16	15	16

Total minimum credits for Data Processing Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 is selected.

[2]BUAD 251-252 may be substituted for BUAD 254-255 with approval of division.

DENTAL ASSISTING

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to perform competently those duties performed by a dental assistant under supervision of a dentist as defined by the rules and regulations governing the practice of dentistry. Successful completion of the curriculum will normally prepare the student for the American Dental Assistants Association Certification Examination.

Special Curriculum Admission Requirements: (1) Each student will have a personal interview with the Program Head; (2) High School courses: 1 unit of science (biology preferred); transfer credits from another institution will be evaluated on an individual basis: (3) Good physical and mental health which may need to be substantiated by a physician's report; (4) The Dental Assisting Program reserves the right to determine the student's final acceptance.

Special Curriculum Completion Requirements: Any student whose overall grade average falls below 2.00 in any one quarter must obtain permission from the Program Head before taking the next course in the sequence. Students are responsible for transportation to and from facilities used for clinical laboratory experiences. Uniform and accessories and Dental Assisting Liability Insurance are the financial responsibility of the individual student.

Special Accreditation Status: The program has been approved by the Council on Dental Education of the American Dental Association.

Dental Assisting

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
DENT	108 Intro. to Dent. Hlth. Care Del.	3			
DENT	101-102-103 Dental Sci.	4	4	4	
DENT	110 Intro. to Dent. Mat.	4			
ENGL	111-112 Eng. Comp.	3	3		
SECR	156 Personal Dev.	3			
DENT	111-112 Clinical Procedures		4	4	
DENT	121-122-123 Chairside Assisting		4	4	6
GOVT	180 Amer. Const. Govt.		3		
SECR	136 Filing & Records Mgt.			3	
ECON	160 Amer. Econ.			3	
DENT	176 Adv. Clinical Procedures				3
PSYC	110 Prin. of Appl. Psyc.				3
SECR	111 Typing				3
	Total Credits	17	18	18	15

Total minimum credits for Dental Assisting Major — Certificate = 68.

Students proficient in typing may request credit by examination.

DENTAL LABORATORY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the individual to construct and repair all types of dental prosthetic appliances according to the dentist's prescription. The occupational objectives include: dental laboratory technician work in commercial or public dental laboratory or in a dental office.

Special Curriculum Admission Requirements: The student must perform a manual dexterity test and must participate in a personal interview with Counseling Services and the Dental Laboratory Program Head.

Special Curriculum Completion Requirements: Any student whose overall GPA falls below a 2.00 must obtain permission from the program head to continue the major in Dental Laboratory Technology.

Special Accreditation Status: The program has been approved by the Council on Dental Education of the American Dental Association.

Dental Laboratory Technology Curriculum

		Credits			
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
DENT	108 Intro to Dental Health Care	3			
DENT	116 Dental Materials	4			
DENT	137 Dental Anatomy & Phys.	4			
ENGL	111-112-113 Eng. Comp.	3	3	3	
GENL	100 Orientation	1			
DENT	141-142-143 Dental Lab Tech I, II, III		7	7	7
NASC	121-122 Natural Science*		4	4	
PHED	100 Fund. of Phys.		1		
PHED	Phys. Activities Elective			1	
	Total Credits	15	15	15	7
	(Second Year)				
DENT	244-245-246 Dental Lab Tech IV, V, VI	7	8	8	
PHED	Phys. Activities Elective	1			
NASC	123 Natural Science*	4			
DENT	298 Seminar and Project			2	
SOSC	Elective	3	3	3	
BUAD	110 Human Relat. & Ldshp. Tng.		3		
Elective				3	
	Total Credits	15	14	16	

*Students who have met the Science requirements may choose the following electives: Biology 101-102-103 or Chemistry 101-102-103 or Physic 101-102-103.

Total minimum credits for Dental Laboratory Major — A.A.S. Degree = 97.

For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

DIETETIC TECHNICIAN

(General)

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide upward career mobility in dietetics. The technician is the middle management and service person, working with both a Registered Dietitian and the dietetic assistant (food service supervisor) in a hospital or other health care facility. The technician may also direct the food service operations in a small hospital, nursing home, restaurant or any food service facility.

Special Accreditation Status: The program is approved by the American Dietetic Association. Graduates are eligible for membership in ADA in the Dietetic Technician category.

Dietetic Technician Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
DIET	100 Intro. to Dietetics	1		
DIET	140 Food Pre. & Mgt. Systems		3	
DIET	134 Nutrition or DIET 130			3
DIET	190 Coordinated Practice		1	1
HRIM	111-112-113 Food Science	3	3	3
HRIM	124-125 Princ. of Food Prep.	4	4	
HRIM	236 Sanitation	3		
ENGL	111-112 English Comp.	3	3	
SPDR	136 Oral Comm. or ENGL 113			3
BUAD	121-122 Business Math	3	3	
ACCT	111 Accounting			4
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Activity			1
	Total Credits	18	17	15
	(Second Year)			
DIET	135-Nutrition	3		
DIET	234-235 Therapeutic Nutrition		4	3
DIET	298 Seminar & Project			3
DIET	190-290 Coordinated Practice	1	2	3
HRIM	126 Prin of Comm. Food Prep.	4		
HRIM	149 Comm. Food Prep. Mgt.		3	
HRIM	264 Food Cost Control		3	
HRIM	277 Personnel Mgt.			3
HLTH	110 Concepts of Pers. & Comm. Hlth	3		
SOSC	101-102-103 Contemp. Amer. Civl.	3	3	3
PHED	Phys. Ed. Electives		1	1
Elective		3		
	Total Credits	17	16	16

Total minimum credits for Dietetic Technician Major — A.A.S. Degree = 99.

For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

Electives may be selected from HLTH 124, 150; HRIM 186, 266; BUAD 110.

DIETETIC ASSISTANT

CERTIFICATE

Purpose: The Dietetic Assistant Certificate Program is designed to provide upward mobility in the field of dietetics; and to develop competency in food service management in such health care facilities as: hospitals, nursing homes, retirement homes, schools, meals-on-wheels, and day care centers. The occupational objectives include staff development for inservice personnel for positions as: assistants to registered dietitians, dietetic technicians, or food service directors in hospitals, nursing homes, schools or day care centers.

Special Curriculum Admission Requirements: A personal interview with a program faculty member or counselor and good health which may need to be substantiated by a physician's report.

Dietetic Assistant Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
DIET	100 Intro. to Dietetics	1		
DIET	130 Nutritional Care	3		
HRIM	236 Sanitation	3		
ENGL	111 Eng. Comp.	3		
DIET	140 Food Prep. & Mgt. Systems		3	
BUAD	121 Bus. Math		3	
BUAD	110 Human Relat. & Ldrshp. Tng.		3	
HLTH	110 Concepts of Pers. & Comm. Hlth.			3
SOSC	101 Contemporary Am. Civ.			3
HRIM	277 Personnel Mgt. for HRIM			3
DIET	190 Coord. Pract.	1-2	1-2	1-2
	Total Credits	11-12	10-11	10-11

Total minimum credits for Dietetic Assistant Major Certificate = 31.

DRAFTING AND DESIGN TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed for persons who seek full-time employment in the drafting and/or machine design fields, or for those presently in the drafting area who are seeking promotion. The occupational objectives include: Drafting Supervisor / Draftsman / Fixture Design Draftsman / Machine Design Draftsman.

Special Curriculum Admission Requirements: Proficiency in high school English and Mathematics to include two units algebra and one unit geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Drafting and Design Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	137 Tech. Writing			3
MATH	121-122-123 Engr. Tech. Math	5	5	5
DRFT	111-112 Tech. Drafting	4		
DRFT	113-114 Tech. Drafting		4	
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
INDT	111-112 Matl. & Processes of Mfg.		3	3
ENGR	151 Mechanics			3
	*Soc. Sci. Elect.	3		
DRFT	Drafting Elect.			2-3
	Total Credits	17	16	17-18
	(Second Year)			
DRFT	211-212-213 Tech. Drafting	3	3	3
ENGR	152-154 Mechanics	4		
INDT	176 Ind. Safety	2		
INDT	226 Plant Layout or Elect.			3
INDT	170 Ind. Mgt.			3
MECH	131-132 Machine Lab		2	2
MECH	119 Jig & Fixture Design		3	
DRFT	298 Sem. & Proj.			2
PHYS	111-112-113 Tech. Phys.	4	4	4
	*Soc. Sci. Elect.	3	3	
	Tech. Elect.		1-3	
	Total Credits	16	16-18	17

Total minimum credits for Drafting and Design Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

EARLY CHILDHOOD DEVELOPMENT ASSISTANT

CERTIFICATE

Purpose: The curriculum is designed to prepare individuals for employment in situations wherein care and maintenance of young children is the primary object. Occupational Objectives include: Aides in Child Development Centers / Day Care Centers / Nursery School / Residential Facilities / Family Day Care Homes.

Special Curriculum Admission Requirements: Students must successfully complete a personal interview with a program faculty member.

Early Childhood Development Assistant

Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
EDUC	100 Orientation to Childhood Devel. & Educ.	2		
ENGL	111-112 Eng. Comp.	3	3	
PSYC	130 Child Growth & Dev. or PSYC 231			3
PSYC	128 Human Relations		3	
PHED	108 Phys. Act. for Child.	3		
HLTH	110 Concepts of Pers. & Comm. Hlth.			3
HLTH	106 First Aid & Safety			3
EDUC	121 Intro. to Early Child. Ed.	3		
EDUC	111-112-113 Tech. in Child Study	3	3	3
EDUC	298 Sem. & Proj.			3
EDUC	136 Matl. & Equip. for Inst. Aides		3	
EDUC	137 Creat. Act. for Children or MUSC 109			3
SOCI	116 Child-Parent Comm. Relat. or BUAD 116, or GOVT Elect.		3	
	Total Credits	15	15	18

Total credits for Early Childhood Development Assistant Major —Certificate = 48.

EARLY CHILDHOOD DEVELOPMENT ASSOCIATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment involving the care and direction of young children, or for those persons presently employed in these situations who wish to update and enhance their competencies. Occupational objectives include: Assistants, Managers, and/or Directors in Day Care and Child Development facilities.

Special Curriculum Admission Requirements: Students must successfully complete a personal interview with a program faculty member.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Early Childhood Education Development

Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
GENL	100 Orientation	1		
EDUC	100 Orientation to Early Childhood Devel. & Educ.	2		
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
PSYC	130 Child Growth & Dev. or PSYC 231	3		
PSYC	128 Human Relations		3	
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
PHED	108 Phys. Act. for Children		3	
HLTH	110 Concepts of Pers. & Comm. Hlth.	3		
EDUC	121-122-123 Childhood Ed.	3	3	3
EDUC	111-112-113 Tech. in Child Study	3	3	3
EDUC	137 Creative Act. for Child Elect.			3
				3
	Total Credits	18	16	16
	(Second Year)			
EDUC	136 Matl. & Equip for Inst. Aides	3		
EDUC	210 Intro. to Spec. Ed.	3		
EDUC	127 Problem Solving in Early Childhood Educa.		3	
EDUC	106 Lang. Arts for Children		3	
EDUC	236 Child Dev. Programs, Plan. & Mgt.			3
EDUC	217 Models of Child Dev. Prog.		3	
EDUC	298 Sem. & Proj.			3
PHED	Elective	1		
SOCI	101 Intro. Soc. or PSYC 232		3	
SOCI	116 Child-Parent Comm. Relat.	3		
SOCI	236 Marriage & the Fam. or PSYC 233			3
HLTH	156 Child Health & Nutrition		3	
HLTH	106 First Aid & Safety or Elect.	3		
HLTH	216 Infant-Toddler Care & Dev.			3
MUSC	109 Music for Children		3	
	Electives	3		4
	Total Credits	16	16	16

Total minimum credits for Early Childhood Development Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

EDUCATIONAL ASSISTANT

CERTIFICATE

Purpose: The curriculum is designed to prepare the student to assist with children in an educational setting. Occupational Objectives include: Instructional Aide / Day Care Center Assistant.

Special Curriculum Admission Requirements: Students must successfully complete a personal interview with a program faculty member.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Educational Assistant Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
EDUC	100 Orientation to Early Child. Develop. & Educ.	3		
EDUC	121-122-123 Child. Educ.	3	3	3
EDUC	161 Educ. Tech.		3	
EDUC	298 Sem. & Proj.			3
EDUC	136 Matl. & Equip. for Inst. Aides			3
ENGL	111-112 Eng. Comp.	3	3	
SPDR	136 Oral Comm. or ENGL 113			3
GENL	100 Orientation	1		
	Soc. Sci. Elect.	3	3	3
PSYC	128 Human Relations		3	
HLTH	110 Concepts of Per. & Comm. Hlth.			3
PHED	108 Phys. Act. for Child. or PHED 109	3		
	Total Credits	16	15	18

Total minimum credits for Educational Assistant Major — Certificate = 48.

EDUCATIONAL ASSOCIATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare preservice and in-service students as instructional assistants who will function in those instructional areas designated by the classroom teacher. Occupational Objectives include: Instructional Assistant / Day Care Center Supervisor / pre-School or Nursery School Assistant.

Special Curriculum Admission Requirements: Students must successfully complete a personal interview with a program faculty member.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Educational Associate Curriculum

	(First Year)	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
EDUC	100 Orientation to early Chl. Devel. & Educ.	2		
EDUC	121-122-123 Child. Educ	3	3	3
EDUC	161-162 Educ. Tech.		3	3
HLTH	110 Concepts of Per. & Comm. Health	3		
HLTH	156 Child Health & Nutrition		3	
HLTH	106 First Aid			3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	137 Oral Comm.			3
PHED	108 Phys. Act. for Child.	3		
GENL	100 Orientation	1		
PSYC	231-232-233 Human Growth & Dev.	3	3	3
MUSC	109 Music for Children			3
	Total Credits	18	15	18
	(Second Year)			
EDUC	137 Creative Activities for Child.	3		
EDUC	117 Intro. to Reading Meth.	3		
EDUC	140 Modern Math Concepts	3		
EDUC	116 Lib. Utiliz. for Inst. Asst.		3	
EDUC	136 Matl. & Equip. for Inst. Asst.			3
EDUC	298 Sem. & Proj.			3
EDUC	150 Modern Science Concepts		3	
*Soc. Sci. Elect.		3	3	3
PSYC	128 Human Relations		3	
PSYC	247 Educ. Psyc.			3
SECR	111 Typing	3		
PHED	100 Fund. of Phys. Act. & 2 electives	1	1	1
	Electives			4
	Total Credits	16	13	17

Total minimum credits for Educational Associate Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

Students proficient in typing may request credit by examination.

The Educational Associate program also includes a two-year option in Special Education. To receive a full description of this curriculum, contact the Health and Public Services Division of the Alexandria Campus at (703) 323-4251 or write "Special Education", Northern Virginia Community College, Alexandria Campus, 3001 North Beauregard Street, Alexandria, Virginia 22311.

EDUCATION

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in Teacher Education. The curriculum is designed to accommodate all teacher education majors or speciality areas of study — elementary and secondary.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English, 2 units of Mathematics (algebra and geometry), 1 unit of Laboratory Science, and 1 unit of Social Science.

Education Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
HIST	111-112-113 Amer. Hist.	3	3	3
*MATH	Mathematics	3	3	3
[1]Nat. Science (with Lab.)		4	4	4
[2]Electives		3	3	3
	Fund. of Phys. Act.			1
	Total Credits	17	16	17
	(Second Year)			
ENGL	Amer., Eng., or World Lit.	3	3	3
	[3]Soc. Sci. Elect.	3-5	3	3
PSYC	201-202-203 Gen. Psyc.	3	3	3
PHED	Phys. Act. Elect.		1	1
SPDR	130 Prin. of Pub. Speaking or Elect.			5
	[2]Electives	6	6	3
	Total Credits	15-17	16	18

Total minimum credits for Education Major — A.S. Degree = 97.

*Math courses to be selected are listed on page 35.

[1]Science courses may be selected from the following: Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

[3]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

ELECTRONICS TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek employment in the field of electronics. Additionally, the successful student is prepared for transfer into a baccalaureate program in Electronics Technology that is offered by a limited number of universities. Occupational objectives include: Electronics Technician / Instrument and Laboratory Technician / Radio and Television Technician / Electronics Product Sales Representative / Communication Technician.

Special Curriculum Admission Requirements: High School Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Electronics Technology Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	
*ENGL	111-112 Eng. Comp.	3	3	
MATH	121-122-123 Engr. Tech. Math	5	5	5
ELEC	114-115 Fund. of D.C. & A.C.	4	4	
ELEC	116 Intro. to Circuit Analysis			4
ELEC	120 Tubes & Transistors	4		
ELEC	125 Intro. to Elec.		5	
ELEC	126 Amplifiers			5
PHYS	111 Tech. Phys.			4
	Total Credits	18	18	18
	(Second Year)			
PHED	Elective		1	
PHYS	112 Tech. Phys.	4		
	*Soc. Sci. Elect.	3	3	3
*ENGL	137 Tech. Writing			3
ELEC	227 Pulse & Switching Circuits	3		
ELEC	241-242-243 Communications	4	4	4
ELEC	276 Instr. & Meas.	4		
ELEC	250 Intro. to Computers		4	
ELEC	260 Control Circuits		4	
ELEC	249 TV Electronics			3
ELEC	287 Adv. Circuits & New Devices			2
ELEC	298 Sem. & Proj. or Coop. Ed.			2
DRFT	256 Elec. Drafting		2	
	Total Credits	18	18	17

Total minimum credits for Electronics Technology Major — A.A.S. Degree = 107.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

ELECTRONICS TECHNICIAN CERTIFICATE

Purpose: The Electronics curriculum is designed for persons who seek employment as electronics technicians. Also, the successful student is prepared to continue for an Associate in Applied Science Degree in Electronics Technology.

Electronics Technician Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
CHEM	101 Gen. Chemistry	4		
ELEC	114 Fund. of D.C.	4		
ELEC	120 Intro. to Tubes & Trans.	4		
PHYS	111 Tech. Physics		4	
ELEC	115 Fund. of A.C.		4	
ELEC	125 Intro. to Elec.		5	
ELEC	116 Intro. to Cir. Analysis			4
ELEC	126 Amplifiers			5
ELEC	227 Pulse & Switch. Cir.			3
ENGL	100 Occup. Eng.			3
PSYC	128 Human Relations			3
*MATH	121-122 Engr. Tech. Math	5	5	
	Total Credits	17	18	18

Total minimum credits for Electronics Technician Major Certificate = 53.

*Students must take a proficiency test in Mathematics before enrolling in MATH 121.

EMERGENCY MEDICAL SERVICES TECHNOLOGY CERTIFICATE

Purpose: This curriculum is designed to develop the competency of the pre-service or in-service personnel in the methods and purpose of emergency care of the sick and injured. The program is designed for firemen, policemen, health and safety specialists, ambulance drivers and attendants and others who are in or interested in entering the emergency medical service field. Students are advised that most Emergency Medical Service Agencies require excellent moral character, a rigorous physical examination, fitness testing, and background investigation prior to consideration for employment.

Emergency Medical Services Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
EMED	111-112-113 Emergency Med. Serv. Tech.	6	6	6
FIRE	111-112 Hazardous Matl.		3	3
ENGL	111-112 Eng. Comp.	3	3	
EMDT	190 Coordinated Internship		1	
EMDT	190 Coordinated Practice			3
PSYC	110 Principles of Applied Psyc.	3		
	Total Credits	12	13	12

Total minimum credits for an Emergency Medical Services Technology Major – Certificate = 37.

ENGINEERING

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student to transfer into a baccalaureate degree program in one of the following engineering fields: Aerospace Engineering, Agricultural Engineering, Architectural Engineering, Ceramic Engineering, Civil Engineering, Electrical Engineering, Engineering Mechanics, Engineering Science, Engineering Technology, Industrial Engineering, Mechanical Engineering, Metallurgical Engineering, Mining Engineering, Nuclear Engineering, Ocean Engineering.

Special Curriculum Admission Requirements: The following high school units: 4 units of English, 4 units of Mathematics or equivalent, 1 unit of lab science (2 units preferred — Chemistry & Physics).

Engineering Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
GENL	100 Orientation	1		
ENGL	111-112-113 Eng. Comp.	3	3	3
MATH	141-142-143 Intro. to Math Anal.	5	5	5
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
ENGR	101-102 Intro. to Engr., Intro. to Engr. Meth.	2	2	
ENGR	103 Concept. Design and Anal.			2
ENGR	121-122-123 Engr. Graphics	2	2	2
CHEM	111-112-113 Gen. Inorganic Chem.	4	4	4
	Total Credits	18	17	17
	(Second Year)			
[1]Soc. Sci. Elect.		3	3	3
[2]Humanities Elect.		3		
MATH	241-242-243 Adv. Math Analysis	4	4	4
PHYS	221-222-223 Gen. Univ. Physics	4	4	4
ENGR	251; 253 Engr. Mech. (Statics & Dynamics)	4	4	
ENGR	252 Engr. Mech or ELEC 217-218			4-5
ENGR	206 Engr. Econ.		3	
	Total Credits	18	18	15-16

Total minimum credits for the Engineering Major — A.S. Degree = 103.

[1]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

[2]Humanities courses may be selected from the following: Music, Arts, Drama, Language, Philosophy, Speech or English.

ENGINEERING DRAFTING

CERTIFICATE

Purpose: The curriculum is designed to prepare the student for employment after a course of study normally one academic year in length. Alternatively the successful student can choose to transfer into one of the A.A.S. programs after completing the certificate program. Usually, substantial amounts of credit can be so transferred. Occupational objectives include: Architectural Draftsman / Mechanical Engineering Draftsman / Structural / Draftsman / Engineering Aide.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Engineering Drafting Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	100 Occup. Eng.	3		
ENGL	137 Tech. Writing			3
MATH	118-119 Intro. to Tech. Math	5	5	
ENGR	100 Intro. to Engr. Tech.	2		
	Non-Technical Elect.	3	3	
GENL	100 Orientation	1		
MECH	131-132 Machine Lab.		2	2
ENGR	53 Elem. of Statics & Str. of Matl.			3
	Sem. & Proj. or Coop Ed.			2
[1]AREAS OF CONCENTRATION: ARCHITECTURE				
ARCH	111-112-113 Arch. Drafting	3	3	3
ARCH	164-165 Matl. & Methods of Constr.		3	3
[2]or TECHNICAL DRAFTING				
DRFT	111-112 Tech. Drafting I & II	4		
DRFT	113-114 Tech. Drafting III & IV		4	
DRFT	211 Adv. Tech. Drafting V			3
INDT	111-112 Matl. & Process of Indus.		3	3
	Total Credits	17-18	16-17	16

Total minimum credits for an Engineering Drafting Major — Certificate = 49.

[1]Subject for Architecture concentration.

[2]Subject for Technical Drafting concentration.

Students should take only one concentration.

ENVIRONMENTAL AND SCIENCE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to accomplish two purposes: to prepare students to enter employment in a variety of environmental and science technology careers and to provide those now employed in these occupations the opportunity to upgrade their skills. Occupational objectives include: Wastewater Treatment Technicians / Air-Water Pollution Control Technicians / Environmental-Natural Science Technicians / Chemical-Biological Technicans / Bio-medical Technicians.

Special Curriculum Admission Requirements: Faculty interview and placement questionnaire.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Environmental and Science Technology Associate Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
(First Year: Common to all Specializations)				
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
MATH	121-122-123 Engr. Tech. Math (or MATH 118-119 & 23-cr. elect.)	5	5	5-6
SCTE	101-102-103 Sci. Tech. Techniques	3	3	3
SCTE	110 Careers in Sci. Tech.	1		
ENVR	106 Intro. to Sanitation	3		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
GENL	100 Orientation	1		
SCTE	125 Appl. Sci. Techniques (Microbiol.)		3	
SCTE	120 Fund. of Field Biol.			4
	Total Credits	17	15	16-17
(Second Year: Science Technology)				
SCTE	204-205 Sci. Tech. Techniques	3	3	
SCTE	221-222-223 Sci. Tech. Appl.	3	3	3
BIOL	101-102-103 Gen. Biol. (or Sci. or Tech. Elect.)	4	4	4
*Soc. Sci. Elect.		3	3	3
SCTE	298 Sem. & Proj. Elect. (Applicable to type of tech.)	3	3	1-5 3
	Total Credits	16	16	14-18

Total minimum credit for Science Technology Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

(Second Year: Wastewater Treatment)				
SCTE	204-205 Sci. Tech. Techniques	3	3	
SCTE	221-222-223 Sci. Tech. Appl.	3	3	3
BIOL	101-102-103 Gen. Biol. (or Sci. or Tech. Elect.)	4	4	4
*Soc. Sci. Elect.		3	3	3
ENVR	216 Wtr. Supp. & Wastewtr. Collect.	3		
ENVR	166 Wastewtr. Trtmt. Plant Op.		5	
ENVR	167 Fund. of Solids Processing			4
ENVR	168 Wastewtr. Trtmt. Plant Control			4
	Total Credits	16	18	18

Total minimum credit for Wastewater Treatment Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

ENVIRONMENTAL AND SCIENCE TECHNOLOGY/SCIENCE TECHNICIAN AIDE

CERTIFICATE

Purpose: This curriculum is designed to provide the specialized skills and knowledge for employment as a laboratory technician. The occupational areas include Bio-medical laboratory, Research laboratory, and Animal laboratory.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Environmental and Science Technician Aide Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
MATH	118-119 Intro. to Tech. Math	5	5	
SCTE	101-102-103 Sci. Tech. Techniques	3	3	3
ENVR	106 Intro. to Sanitation	3		
SCTE	124-125 Appl. Sci. Tech.		3	3
SCTE	110 Careers in Sci. Tech.	1		
ENGL	100 Occup. Eng.	3		
	Soc. Sci. Elect.		3	3
	Tech. Elect.			3
	Sci. Elect.		3	
	Total Credits	15	17	12

Total minimum credits for the Science Technician Aid Certificate = 44.

ENVIRONMENTAL AND SCIENCE TECHNOLOGY/WASTEWATER TREATMENT

CERTIFICATE

Purpose: The curriculum is designed to provide educational opportunities for individuals whose goals are to become wastewater treatment plant operators. There is state certification for plant operators at four levels . . . IV through I. This program will enable an individual to successfully progress through the classification tests as well as to perform effectively the related tasks in the wastewater treatment plant environment.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Wastewater Treatment Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ENVR	60 Basic Concepts for Wtr. & Wastewater Treatment	3		
ENVR	216 Water Supply & Wastewater Collection	3		
ENGL	100 Occup. Eng.	3		
ENVR	166 Wastewtr. Trtmt. Plant Op.		5	
ENGL	137 Tech. Writing		3	
	Soc. Sci. Elect.		3-4	
ENVR	167 Fund. of Solids Proc.			4
ENVR	168 Wastewtr. Trtmt. Plant Control			4
	Total Credits	9	11-12	8

Total minimum credits for Wastewater Treatment Certificate = 28.

FIRE SCIENCE/ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Administration

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in administration. The occupational objectives include: Fire Suppression / Communications / Insurance Investigation / Equipment Sales & Service.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Fire Science Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106 Fund. of Fire Serv. Admin.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	141 Fire Admin.		3	
*ENGL	111-112 Eng. Comp.	3	3	
MATH	101-102 Fund. of Math		3	3
GENL	100 Orientation	1		
NASC	121-122-123 Natural Sciences	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			6
	Total Credits	17	17	17
	(Second Year)			
FIRE	147 Meth. of Fire Inst.	3		
FIRE	208 Water Distrib. Sys.			3
FIRE	216 Fire Hydra. & Equip.			4
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	298 Sem. & Proj.			3
PHED	Phys. Act. Elect.	1		
	*Soc. Sci. Elect.	3	3	3
ENGL	137 Tech. Writing	3		
BUAD	110 Human Relations & Ldrshp. Trng.	3		
BUAD	276 Personnel Mgt.		3	
*SPDR	136 Oral Comm.		3	
	Electives	3	3	3
	Total Credits	16	16	16

Total minimum credits for Fire Science Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

FIRE SCIENCE

CERTIFICATE

Specialization in Administration

Fire Science Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106 Fund. of Fire Serv. Admin.	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	141 Fire Admin.		3	
FIRE	146 Fire Admin. & Law			3
ENGL	111-112 Eng. Comp.	3	3	
MATH	101-102 Fund. of Math		3	3
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
BUAD	110 Human Relations & Ldrshp. Trng.	3		
	Soc. Sci. Elect.			3
	Total Credits	17	16	16

Total minimum credits for Fire Administration Major Certificate = 49.

FIRE SCIENCE/INVESTIGATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Investigation

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in fire investigation.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of cooperative Education. For further information, see page 33.

Fire Science Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	146 Fire Admin. & Law	3		
*ENGL	111-112 Eng. Comp.	3	3	
GENL	100 Orientation	1		
MATH	101-102 Fund. of Math	3	3	
NASC	121-122-123 Natural Science	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			6
	Total Credits	17	17	17
	(Second Year)			
FIRE	147 Meth. of Fire Inst.	3		
FIRE	119 Indust. Fire Prot.	3		
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	237 Arson Detect. & Inv.		3	
FIRE	298 Sem. & Proj.			3
ADJU	231-232-233 Crim. Law Evid. & Procedures	3	3	3
PHED	Phys. Act. Elect.	1		
	*Soc. Sci. Elect.	3	3	3
ENGL	137 Tech. Writing		3	
*SPDR	136 Oral Comm.			3
	Elective	3		3
	Total Credits	16	16	15

Total minimum credits for Fire Science Major A.A.S. Degree = 98.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

FIRE SCIENCE

CERTIFICATE

Specialization in Investigation

Fire Science Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
ADJU	231 Criminal Law, Evid. & Procedures	3		
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	237 Arson Detect. & Inv.			3
ENGL	111-112 Eng. Comp.	3	3	
MATH	101-102	3	3	
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
	Soc. Sci. Elect.			3
	Total Credits	17	16	16

Total minimum credits for Fire investigation Major Certificate = 49.

FIRE SCIENCE/MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Specialization in Management

Purpose: The curriculum is designed for persons seeking employment in the broad field of the fire service with specialization in fire management. The occupational objectives include: Fire Suppression / Communications / Insurance Investigation / Equipment Sales & Service.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Fire Science Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	109 Fire Suppression Oper.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
*ENGL	111-112 Eng. Comp.	3	3	
MATH	101-102 Fund. of Math	3	3	
GENL	100 Orientation	1		
NASC	121-122-123 Natural Sciences	4	4	4
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Electives			3
	Total Credits	17	17	17
	(Second Year)			
FIRE	137 Fire Fight. Tact. & Strat.		3	
FIRE	147 Meth. of Fire Inst.	3		
FIRE	119 Indust. Fire Prot.	3		
FIRE	208 Water Distrib. Sys.			3
FIRE	216 Fire Hydra. & Equip.			4
FIRE	227 Bldg. Constr. & Codes		4	
FIRE	298 Sem. & Proj.			3
PHED	Phys. Act. Elect.	1		
*Soc. Sci. Elect.		3	3	3
*SPDR	136 Oral Comm.	3		
*ENGL	137 Tech. Writing		3	
	Electives	3	3	3
	Total Credits	16	16	16

Total minimum credits for Fire Science Major — A.A.S. Degree = 98.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

FIRE SCIENCE

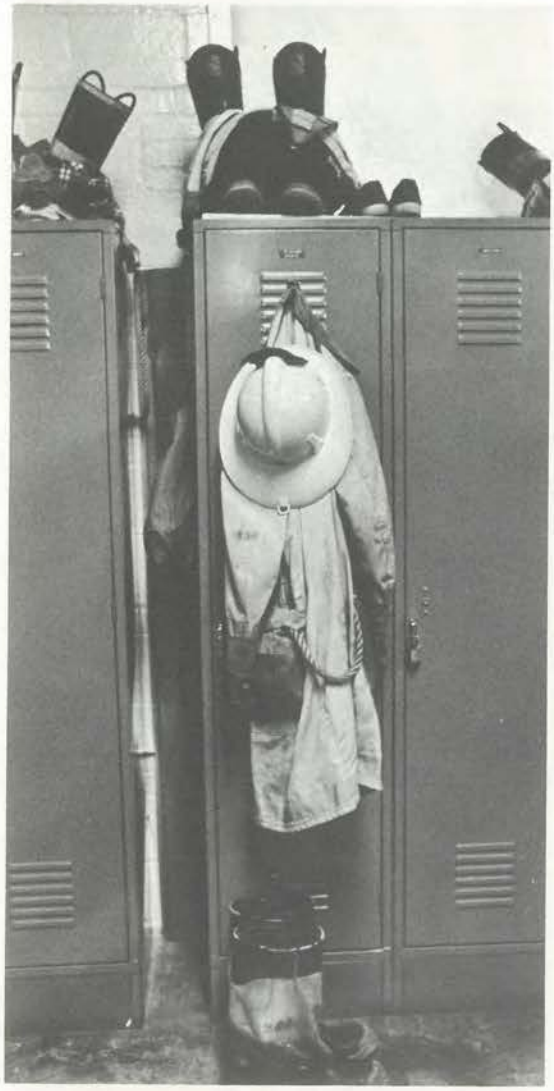
CERTIFICATE

Specialization in Management

Fire Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
FIRE	100 Intro. to Fire Sci.	3		
FIRE	108 Fund. of Fire Suppression	3		
FIRE	109 Fire Suppression Oper.			3
FIRE	111-112 Hazardous Matl.		3	3
FIRE	116 Fund. of Fire Prevention		3	
FIRE	120 Fire Protection Equip. & Sys.			3
ENGL	111-112 Eng. Comp.	3	3	
MATH	101-102 Fund. of Math	3	3	
NASC	121-122-123 Natural Science	4	4	4
GENL	100 Orientation	1		
	Soc. Sci. Elective			3
	Total Credits	17	16	16

Total minimum credits for Fire Management Major Certificate = 49.



FIRE SCIENCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

(George Mason University Transfer Program)

Purpose: This curriculum is designed for persons who plan to transfer to George Mason University to complete a Bachelor of Science Degree in Fire Administration and Technology.

Fire Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
FIRE	100 Intro. to Fire Sci.	3		
FIRE	106-141 Fire Serv. Adm.	3	3	
FIRE	108-109 Fund. Fire Supp.	3		3
FIRE	111-112 Haz. Matl.		3	3
FIRE	116 Fund. of Fire Prev.		3	
FIRE	120 Fire Prot. Equip. & Sys.			3
ENGL	111-112-113 Eng. Comp.	3	3	3
MATH	191-192-193 Finite Math	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
	Total Credits	17	16	16
	(Second Year)			
FIRE	119 Ind. Fire Prot.	3		
FIRE	137 Fire Fight. Tact. & Strat.		3	
FIRE	147 Fire Instr.	3		
FIRE	208 Water Distrib. Sys.			3
FIRE	216 Fire Hydra. & Equip.			4
FIRE	227 Bldg. Const. & Codes		4	
FIRE	237 Arson Det. & Inv.		3	
FIRE	298 Sem. & Proj.			3
SPDR	136 Oral Comm.	3		
	[1]Sciences (with Lab)	4	4	4
SOCI	101-102-103 Intro. Socio.	3	3	3
	Total Credits	16	17	17

Total minimum credits for Fire Science Major A.A.S. Degree = 99.

[1]Science courses may be selected from Biology, Chemistry, Physics, Geology, or the Natural Science 121, 122, 123 course.

[1]Science with laboratory from: NASC 121, 122, 123 (Natural Science) CHEM 101, 102, 103, or 111, 112, 113 (Chemistry), BIOL 101, 102, 103 (Biology), PHYS 101, 102, 103 (Physics).

GENERAL STUDIES

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who are interested in transfer to a four-year College or University, and wish the flexibility of either broadening or narrowing as much as possible their first two years of undergraudate study. A student entering College with uncertain educational goals will have sufficient flexibility to take courses in a wide variety of areas of study.

General Studies Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	111-112-113 Eng. Comp.	3	3	3
HIST	Elect. in History	3		
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
	[1]Humanities Elect.	3		
	[2]Soc. Sci. Elect.	3	3	3
	Electives	0-4	8-11	8-11
	Total Credits	14-18	15-18	15-18
	(Second Year)			
	[3]Electives	15-18	15-18	15-18

Total minimum credits for a General Studies Major A.S. Degree = 97.

[1]Humanities courses may be selected from the following: MUSIC, ART, DRAMA, LANGUAGE, PHILOSOPHY, SPEECH, ENGLISH, or HUMANITIES.

[2]Soc. Sci. courses may be selected from the following: ECONOMICS, PSYCHOLOGY, SOCIOLOGY (ANTHROPOLOGY), SOCIAL SCIENCE, GOVERNMENT, HISTORY.

[3]Electives may be selected according to interest. It is recommended that a student select a year's sequence or combination of courses which total 5 credits or more if transfer is desired. A student desiring to transfer should consult the College or University to which transfer is contemplated in addition to seeking the guidance of a counselor and/or faculty advisor. All requirements for the degree are included in the first year as specified prefixes and specified electives. Any course offered by the College numbered 100 or above is applicable toward meeting the graduation requirements with the General Studies major and may be taken as an elective. However, if transfer is planned, seek advisor approval of all electives.

HORTICULTURAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for students who seek full-time employment in one of the several areas related to the horticultural industry or for those presently working who seek further knowledge and advancement. The curriculum offers specialization in Landscape Grower and Floral Design areas. The occupational objectives include: Manager of nurseries or greenhouses / Manager of Maintenance Operations such as golf courses, cemeteries, home lawn care and gardens / Retail Merchandising of Horticultural products in Florist Shops, Department Stores, and Nurseries / Floral Designer / Grower / Nurserymen.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Horticulture Technology Curriculum

	(First Year)	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
HORT	100 Intro. to Hort.	4		
BUAD	121-122-123 Bus. Math	3	3	3
ENGL	111-112 Eng. Comp.	3	3	
SPDR	136 Oral Comm.			3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
CHEM	110 Hort. Chem.	4		
HORT	107 Plant Propagation			3
HORT	146 Horticulture Botany		4	
ECON	160 Amer. Econ.		3	
PSYC	110 Prin. of Appl. Psych.		3	
HORT	120 Soils			4
GOVT	180 Amer. Const. Govt.			3
	Total Credits	16	17	17

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

	(Second Year — Landscape — Grower) Option A			
BUAD	174-175 Small Bus. Mgt.	3	3	
MKTG	100 Prin. of Mktg.	3		
HORT	130 Envir. Factors in Plant Growth	3		
HORT	210 Plant Pests	4		
HORT	256 Woody Plants	3		
HORT	290 Coord. Intern. or Coop. Ed.	1-5		
MKTG	109 Prin. of Salesmanship		3	
HORT	211 Plant Pest Control		3	
HORT	257 Herbaceous Plants		3	
HORT	250 Landscape Planning		2	
Horticulture Elective			2-3	
HORT	220 Nursery Mgt.			3
HORT	240 Turf Green Mgt.			3
HORT	230 Greenhouse Mgt.			3
HORT	126 Landscape Constr. & Maint.			3
Horticulture Elective				4-6
	Total Credits	17-21	16-17	16-18

Total minimum credits for Landscape/Grower Major — A.A.S. Degree = 99.

	(Second Year — Floriculture) Option B			
BUAD	174-175 Small Bus. Mgt.	3	3	
MKTG	100 Prin. of Mktg.	3		
HORT	130 Envir. Factors in Plant Growth	3		
HORT	210 Plant Pests	4		
HORT	270 Floral Design & Arranging I	2		
HORT	290 Coord. Intern. or Coop. Ed.	1-5		
MKTG	109 Prin. of Salesmanship		3	
HORT	211 Plant Pest Control		3	
HORT	257 Herbaceous Plants		3	
HORT	266 House & Conservatory Plants		3	
HORT	250 Landscape Planning		2	
HORT	230 Greenhouse Mgt.			3
HORT	260 Flower Shop Mgt.			3
HORT	156 Greenhouse Crop Production			3
HORT	276 Floral Design & Arranging II			2
	[1]Horticulture Elective			4-6
	Total Credits	16-20	17	15-17

Total minimum credits for Floriculture Major — A.A.S. Degree = 98.

[1]Following is a list of approved Horticulture electives: HORT 157 Fruit Production, HORT 158 Vegetable Production, HORT 226 Garden Center Management, HORT 136 Interior Landscaping.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT/FOOD SERVICE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to enable the student to enter executive training and management positions in Food Establishments, College Feeding Complexes, Resorts or Private Clubs. The curriculum specializes in the Food Service management phase of the hospitality industry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

HRIM/ Management/Food Service Curriculum

	(First Year)	Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM	124-125 Prin. of Food Prep.	4	4	
HRIM	Elective			3
HRIM	147 Rest./Instit. Org. & Mgt.	3	3	
HRIM	111-112-113 Food Science	3	3	3
HRIM	236 Sanitation	3		
HRIM	186 Equip. Layout & Design			3
ENGL	111-112-113 Eng. Comp	3	3	3
BUAD	121-122 Business Math		3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 elect.		1	1
	Total credits	17	17	16
	(Second Year)			
HRIM	126 Prin. of Comm. Food Prep.	4		
[1]HRIM	Elective	3	6	3
HRIM	149 Comm. Food Prod. Mgt.		3	
HRIM	264 Food Cost Control		3	
HRIM	266 Food Purch.		3	
HRIM	298 Sem. & Proj. (Elective)			3
HRIM	277 Personnel Mgt. for HRIM			3
HRIM	286 Catering			3
ACCT	111 Accounting	4		
SOSC	101-102-103 Contemp. American Civl.	6		3
PHED	Elect.		1	
	Total credits	17	16	15

Total minimum credits for Food Service Major — A.A.S. Degree = 98.

[1]HRIM Electives may be selected from: HRIM 140, 146, 156, 188, 265, 289, 297; ACCT 126.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT

CERTIFICATE

Specialization in Food Service Management

Purpose: The curriculum is designed for persons seeking employment in the hospitality industry and for those presently employed who desire updating in their occupational specialty.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Food Service Curriculum

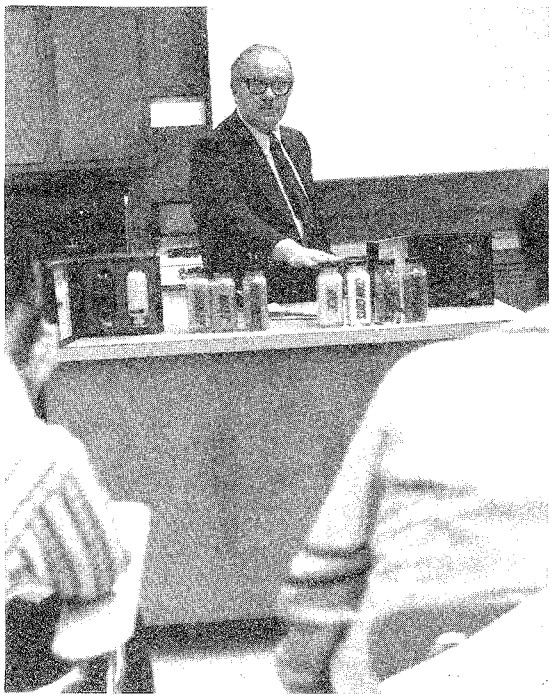
		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]HRIM	124-125 Prin. of Food Prep.	4	4	
[1]HRIM	147 Rest./Inst. Org. & Mgt.		3	
HRIM	236 Sanitation	3		
HRIM	266 Food Purch.		3	
HRIM	277 Personnel Mgt. for HRIM			3
[2]HRIM	287 Front Off. Procedures	3	3	3
GENL	100 Orientation	1		
PSYC	110 Prin. of Appl. Psyc. or BUAD 110			3
[1]HRIM	140 Prin. of Baking			4
[3]ENGL	111 Eng. Comp.	3		
	Total Credits	14	13	13

Total minimum credits for Food Service Management Major Certificate = 40.

[1]Substitution for these courses can be made subject to Division approval.

[2]HRIM Elective for Food Service Management Specialization may be selected from: HRIM, 126, 140, 186, 234, 264, 286, 289, 290, 297.

[3]ENGL 100 may be substituted.



HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT/HOTEL-MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to enable the student to enter executive training and management positions in Hotels, Motor Hotels, and Clubs. The curriculum specializes in the Hotel/Motor Hotel management phase of the public hospitality industry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Hotel Management Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
HRIM	124-125 Prin. Food Prep.	4	4	
HRIM	126 Prin. Comm. Food Prep.			4
HRIM	146 Hotel/Motel Org. & Mgt.	3		
HRIM	156 Club Mgt.		3	
HRIM	168 Exec. Housekeeping			3
HRIM	111-112-113 Food Science	3	3	3
ENGL	111-112-113 Eng. Comp.	3	3	3
ACCT	111-112-126 Accounting	4	4	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act.		1	
	Total Credits	18	18	16
	(Second Year)			
HRIM	236 Sanitation	3		
HRIM	287 Front Off. Procedures	3		
HRIM	264 Food & Bev. Cost Control		3	
HRIM	266 Food Purch.		3	
HRIM	188 Mktg. of Hospitality Serv.		3	
HRIM	277 Personnel Mgt. for HRIM			3
HRIM	286 Catering			3
HRIM	289 Hotel/Motel Law			3
[1]HRIM	Electives	3		3
PHED	Phys. Act. Elect.	1		1
BUAD	121-122 Bus. Math	3	3	
SOSC	101-102-103 Contemporary American Civ.	3	3	3
	Total Credits	16	15	16

Total minimum credits for Hotel/Motel Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]HRIM Electives may be selected from: HRIM 100, 149, 164, 186, 265, 297, 298.

HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT

CERTIFICATE

Specialization in Hotel Management

Purpose: The curriculum is designed for persons seeking employment in the hospitality industry and for those presently employed who desire updating in the lodging industry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

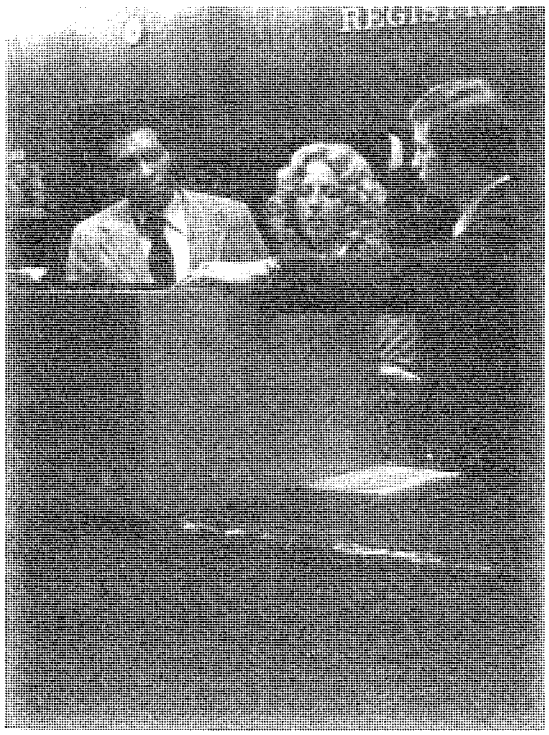
Hotel Management Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
HRIM	124-125 Food Prep.	4	4	
HRIM	146 Hotel/Motel Org. & Mgt.	3		
HRIM	168 Exec. Housekeeping			3
HRIM	277 Personnel Mgt. for HRIM			3
HRIM	287 Front Off. Procedures	3		
HRIM	188 Mktg. of Hospitality Ser.		3	
[1]HRIM	Elective	3	3	3
[2]ENGL	111 Eng. Comp.		3	
PSYC	110 Prin. of Appl. Psyc. or BUAD 110			3
GENL	100 Orientation	1		
	Total Credits	14	13	12

Total minimum credits for Hotel/Motel Management Major Certificate = 39.

[1]HRIM Electives for Hotel/Motel Management Specialization may be selected from: HRIM 156, 236, 264, 265, 266, 286, 289, 297, 298, BUAD 121-122.

[2]ENGL 100 may be substituted.



HOTEL, RESTAURANT & INSTITUTIONAL MANAGEMENT

CERTIFICATE

Specialization in Travel & Tourism

Purpose: Supplement the staffs of airlines, automobile associations, hotel and hotel chains, major oil companies, railroads, steamship companies, and travel agencies by providing new employees who have combined meaningful technical training with work experience. Help develop and up-date the present manpower in Travel Industry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Travel and Tourism Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ENGL	111 Eng. Comp.	3		
PSYC	110 Prin. of Applied Psychology			3
HRIM	164-165*-166 Tourism Prin. & Prac.	3	3	3
HRIM	167 Int. Travel & Tourism			3
HRIM	169 Travel Destination Geography	3		
HRIM	179 Prin. of Group Travel Planning		3	
HRIM	277 Personnel Mngt. for HRIM	3		
BUAD	121-122 Bus. Math		3	3
HRIM	189 Mktg. & Sales Mngt. for Travel Ind.		3	
HRIM	190 Intern. for Travel & Tourism or HRIM Elec.			3
	Total Credits	12	12	15

*HRIM 164 Req. as Prerequisite

[1]ENGL 100 may be sub. in Certificate Programs.

HUMAN SERVICES ASSOCIATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide a broad base of knowledge, methods and skills which underlie comprehensive delivery of human services with options or specialties in social work / social service, mental health, gerontology, drug / alcohol rehabilitation, community / neighborhood development, and individual and group counseling and guidance. Occupational objectives include: Drug and Alcohol Rehabilitation Technician, Gerontology / Nursing Home Aides, Mental Health Technician, Community Development Assistants, Social Work / Social Services Assistants, Counseling Assistants.

Special Curriculum Admission Requirements: A personal interview with a program faculty member is required.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Human Services Associate Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
SOCI	101-102-103 Intro. Soc.	3	3	3
PSYC	201-202-203 Gen. Psych.	3	3	3
PBSV	150 Intro. to Community & Soc. Ser.	3		
PSYC	231-232-233 Human & Dev.	3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
GENL	100 Orientation	1		
PBSV	256 Interviewing Skills		3	
HMSV	128 Community Resources & Services			3
	Total Credits	17	16	16

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 29.

	(Second Year: Alcohol & Drug Abuse Rehabilitations)			
MENT	104-105 Intro. to Mental Hlth.	3		3
MENT	221 Mental Hlth	3		
HMSV	211-212-213 Alcohol/Drug Abuse Rehab. Prog.	3	3	3
MENT	230 Soc. of Mental Hlth.	3		
SOCI	236 Marriage & the Family			3
HMSV	290 Coord. Internship (or HMSV 297 Coop. Ed.)		5	
HMSV	298 Sem. & Proj.		4	
HMSV	144-145 Group Process I-II	3		3
PBSV	258 Social Change Sills			3
	Electives	3		3
	Total Credits	18	12	18

Total minimum credits for Alcohol & Drug Abuse Rehabilitations Major — A.A.S. Degree = 97.

		Credits		
	(Second Year: Gerontology)	1st Qtr.	2nd Qtr.	3rd Qtr.
HMSV	201-202-203 Gerontology	3	3	3
MENT	116 Activities Therapies	3		
SOCI	266 Death & Society	3		
HMSV	144-145 Group Process I-II	3		3
DIET	130 Nutritional Care	3		
HMSV	290 Coord Internship (or HMSV 297 Coop. Ed.)		5	
HMSV	298 Sem. & Proj.		4	
HMSV	217 Rec. for Senior Adults			3
[1]HLTH	110 Concepts of Personal & Community Hlth.			3
PBSV	128 Social Change Skills			3
	Electives	3		3
	Total Credits	18	12	18

Total Minimum Credits for Gerontology Major — A.A.S. Degree = 97.

[1]Or approved substitute.

	(Second Year: Mental Health)			
MENT	104-105 Intro. Mental Hlth.	3		3
MENT	221-222-223 Mental Hlth.	3	3	3
MENT	116 Activities Therapies	3		
MENT	230 Sociology of Mental Hlth.	3		
[1]SOCI	236 Marriage & the Family	3		
MENT	290 Coord. Internship (or MENT 297 Coop. Ed.)		5	
MENT	298 Sem. & Proj.		4	
MENT	110 Intro. to Abnormal Psychology			3
HMSV	144-145 Group Process I-II	3		3
PBSV	128 Social Change Skills			3
	Electives			3
	Total Credits	18	12	18

Total minimum credits for Mental Health Major — A.A.S. Degree = 97.

[1]Or approved substitute.

	Second Year Social/Community Services)			
PBSV	257 Group Leadership	3		
SOCI	184-185 Cont. Soc. Problems I-II	3	3	
PBSV	259 Social Legislation	3		
PSYC	120 Experiences in Personal Growth	3		
MENT	230 Soc. of Mental Hlth.	3		
HMSV	290 Coord. Internship (or HMSV 297 Coop. Ed.)		5	
HMSV	298 Sem. & Proj.		4	
[1]SOCI	236 Marriage & the Family			3
PBSV	258 Soc. Change Skills			3
BUAD	110 Human Relat. & Leadership Training			3
PBSV	116 Public Personnel Admin.			3
HMSV	144-145 Group Process I-II	3		3
	Electives			3
	Total Credits	18	12	18

Total minimum credits for Social/Community Services Major —A.A.S. Degree = 97.

[1]Or approved substitute.

INTERIOR DESIGN

Interior Design

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The Interior design program is intended to prepare the graduate to enter the interior design field at the technician's level. The program is designed to give the student a basic foundation in: (1) the visual presentation skills; (2) a knowledge of elements of formal and spacial design and color cordination; (3) a knowledge of the evolution of furniture and interior styles, and (4) a basic knowledge of the business procedures in the profession. A personal interview with the head of the Interior Design Department is helpful to a new student.

After completing two years (six quarters) of the program, the graduate will earn an Associate in Applied Science degree. Electives within the program enable the student to specialize in areas of interest and future potential employment. Career opportunities exist in the retail market, furniture, fabric or interior accessories, and in interior space planning and drafting with architectural firms. Self-employment is also a possibility within the field of interior design.

COORDINATED INTERNSHIP / COOPERATIVE EDUCATION: Each student, when he/she reaches the end of the curriculum is required to spend 24 hours per week under the direct supervision of an interior designer, interior design firm or architectural design firm, for one quarter. The student will apply for the intership as if he/she were applying for a full-time job. This program is most beneficial to the student in learning the practical side of the Interior Design business.

INTERIOR DESIGN CURRICULUM

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	First Year)			
INDG	104 Tech. of Interior Design	3		
ARTS	154-155-156 Design	3	3	3
INDG	105 Beg. Drafting Tech. for the Int. Designer		3	
INDG	106 Isometrics and Model Const.			3
INDG	107 Perspective and Rendering		3	
ARTS	111-112-113 Hist. & Appre. of Art	3	3	3
INDG	109 Styles in Furniture & Int.			3
ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act & 1 Phys. Act. Elective	1	1	
INDG	108 Color and Space Theories	3		
HORT	136 Interior Landscaping			3
	Total Credits	17	16	18
	(Second Year)			
INDG	208 Advanced Drafting Tech.	3		
INDG	206 Textile, Floorcoverings, Wall & Window Treat.		3	
INDG	207 Furniture, Lighting Equipment and Access.		3	
INDG	216 Bus. Procedures for Int. Design	3		
INDG	298 Sem. & Project		3	
INDG	290 Coord. Intern. or Co-op Educ.			4-5
PSYC	110 Principles of Applied Psyc.	3		
SOSC	Social Science Electives		3	3
ARTS	183 or ARTS 171	3		
INDG	217 Int. Design Trade Sources		3	
INDG	Interior Design Electives	6	3	2-3
PHED	Phys. Act. Elect.			1
	Total Credits	18	18	10.12

Total minimum requirements for Interior Design curriculum A.A.S. Degree = 97.

[1]Areas of electives may also be selected from the following curricula which offer complimentary areas to Interior Design: Architectural Technology, Commercial Art, Art History, Business Administration, Drafting and Design Technology, Horticultural Technology/Floral Design, Hotel Management, Retail Merchandising.

LIBERAL ARTS

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts degree major in Liberal Arts is designed for persons who plan to transfer to a four year institution to complete a bachelors degree program in any of the Humanities or social science areas.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent: 4 of English, 2 of Mathematics (Algebra and Geometry), 1 of Laboratory Science and 1 of History. Two units of Foreign Language are recommended.

Liberal Arts Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
(First Year)				
ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
HIST	Amer. Hist. or Hist. of West. Civ.	3	3	3
*MATH	Mathematics	3	3	3
[1]Natural Science (with Lab.)		4	4	4
[2]Electives or				
**Foreign Language		3-4	3-4	3-4
Total Credits		17-18	16-17	16-17
(Second Year)				
ENGL	Amer. Eng., or World Lit.	3	3	3
**Foreign Language		4	4	4
[3]Soc. Sci. Elect.		3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
[2]Electives		6	6	6
Total Credits		17	17	17

Total minimum credits for Liberal Arts Major — A.A. Degree = 97.

*Math courses to be selected are listed on page 35.

**See "Foreign Lang. Requirement for A.A. Degree in Liberal Arts" on page 35.

[1]Science courses may be selected from Biology, Chemistry, Physics, Geology or the Natural Science 121-122-123 course.

[2]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

[3]Soc. Sci. courses may be selected from the following: Economics, Geography, Government, History, Humanities, Psychology, Social Science or Sociology (Anthropology).

**If foreign language requirements are met, electives may be selected.

MECHANICAL ENGINEERING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the student for industrial employment as a mechanical engineering technician. Occupational objectives include: Draftsman or Drafting Supervisor / Estimator / Engineering Equipment Inspector / Engineering Plant Operator / Research and Development Technician / Manufacturers Sales Representative.

Special Curriculum Admissions Requirements: High School Algebra and Geometry.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Mechanical Engineering Technology Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
(First Year)				
GENL	100 Orientation	1		
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	137 Tech. Writing			3
MATH	121-122 Engr. Tech. Math	5	5	
ENGR	100 Intro. to Engr. Tech.	2		
DRFT	111-112-113 Tech. Drft.	2	2	2
INDT	111-112 Matl. & Processes of Indus. I-II		3	3
ENGR	151 Mechanics (Statics)			4
MECH	131-132 Machine Lab. I-II		2	2
*Soc. Sci. Elect.		3	3	3
PHED	100 Fund of Phys. Act.			1
Total Credits		16	18	18
(Second Year)				
PHED	Act. Elect.	1	1	
PHYS	111-112-113 Tech. Phys.	4	4	4
ENGR	152-153 Mech. (Strength & Dynamics)	3	3	
ENGR	154 Mech. Lab.	1		
MECH	237-238 Machine Design I-II		4	4
MECH	246 Metallurgy I	4		
MECH	264 Thermodynamics I	4		
MECH	298 Sem. & Proj. or Coop. Ed.			2
	Tech. Elect. (or MATH 123)		3-4	3-5
Total Credits		17	15-16	13-15

Total minimum credits for Mechanical Engineering Technology Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

MEDICAL LABORATORY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare the students for employment, upon graduation and certification, as Medical Laboratory Technicians in hospital laboratories, private laboratories, physicians' office laboratories, health department laboratories, and industrial medical laboratories.

Special Curriculum Admission Requirements: (1) 2 units of mathematics, 2 units of laboratory science (1 unit must be Chemistry); (2) A Satisfactory interview with the Program Head. "Students are advised that good physical and mental health, as evidenced by a physician's report may be required for employment."

Medical Laboratory Technology Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
CHEM	101-102-103 Gen. Chem. or CHEM 111-112-113	4	4	4
MATH	181-182-183 Gen. College Math	3	3	3
*ENGL	111-112-113 Eng. Comp.	3	3	3
GENL	100 Orientation	1		
BIOL	251-252 Anatomy & Physiology	4	4	
BIOL	176 Microbiology			4
MDLB	100 Intro. to Med. Lab. Sci.	3		
MDLB	116 Intro. to the Clinical Lab.		4	
MDLB	126 Prin. of Hematology			4
	Total Credits	18	18	18
	(Second Year)			
MDLB	225 Clin. Hematology	7		
MDLB	277 Clin. Microbiology	6		
MDLB	259 Diag. Microbiology	4		
*Soc. Sci. Elect.			9	
MDLB	250 Prin. of Blood Bkg. & Serology		4	
MDLB	264-265 Clin. Chem.		5	8
MDLB	287 Clin. Blood Bkg. & Serology			7
PHED	100 Fund. of Phys. Act. & 2 Elect.	1		2
MDLB	298 Sem. & Proj.			1
	Total Credits	18	18	18

Total minimum credits for Medical Laboratory Technology Major – A.A.S. Degree = 107.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

MEDICAL RECORD TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students to work as medical record technicians in a health record service located in hospitals, nursing homes, and ambulatory care facilities.

The medical record technician is trained in all of the functions normally performed by a health record service which can include: analyzing and technically evaluating health records and reports; compiling, interpreting and utilizing census; discharge analysis and vital statistics; Coding symptoms, diseases and operations according to a recognized classification system; assisting with medical facility committee procedures; releasing confidential information in accordance with professional ethics; abstracting and retrieving medical information; utilizing a variety of health record storage and retrieval systems; maintaining specialized health information registries; transcribing medical reports; providing data to the health care facility staff in patient care; evaluation and utilization review activities.

In addition, the technician is prepared to accept the responsibilities of supervising health record operations. Job opportunities currently exist within a variety of health care facilities, insurance companies, federal, state and local health agencies, and research groups.

Graduates are eligible to take the national accreditation examination administered by the American Medical Record Association.

Special Curriculum Completion Requirements: Any student whose final average falls below a "C" in any Medical Record Science course must obtain permission from the Program Head to repeat the course and earn a final grade of "C" or higher before taking the next course in the sequence. Students are totally responsible for transportation to and from the College and the various hospitals and other health agencies which are utilized for coordinated practical experience. In addition, students are responsible for purchasing laboratory jackets and accessories prior to beginning their practical experience.

Special Accreditation Status: The program is approved by the Council on Medical Education of the American Medical Association in cooperation with the American Medical Record Association.

Medical Record Technology Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
*ENGL	111-112-113 Eng. Comp.	3	3	3
NASC	111-112-113 Health Science	4	4	4
MDRS	100 Med. Report Transcript.			3
MDRS	111-112 Med. Record Sci.	4	4	
MDRS	190 Coord. Practice		1	2
HLTH	124-125 Med. Terminology	3	2	
GENL	100 Orientation	1		
DAPR	106 Prin. of Data Processing			3
	Elective			3
	Total Credits	15	14	18
	(Second Year)			
HLTH	150 Concepts of Disease	3		
MDRS	213-214 Med. Record Sci.	4	4	
MDRS	290 Coord. Prac.	4	5	5
MDRS	298 Sem. & Proj.			4
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
*SOSC	101-102-103 Contemp. Amer. Civ.	3	3	3
BUAD	110 Human Relat. & Ldrshp. Tng.		3	
DAPR	281 Sys. Analysis	3		
BUAD	164 Bus. Mgt.			3
	Total Credits	18	16	16

Total minimum credits for Medical Record Technology Major – A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

MERCHANDISING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in areas involving the merchandising and distribution of goods and for those presently in these fields who are seeking promotion. The occupational objectives include: Store Manager / Assistant Manager / Sales Supervisor / Department Manager / Sales Representative / Buyer / Assistant Buyer. The curriculum offers specialization in Fashion Merchandising and Retail Merchandising. These specializations are designed for the second year of the curriculum after a common first year.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Merchandising Curriculum

(First Year: Common to all Specialization)		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT	111-112-113 Accounting	4	4	4
*BUAD	100 Intro. to Bus.	3		
*ECON	160 Amer. Econ.	3		
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm. (or ENGL 180)			3
BUAD	121-122-123 Bus. Math	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
BUAD	164 Prin. of Bus. Mgt.		3	
MKTG	100 Prin. of Marketing		3	
MKTG	136 Retail Organization Mgt.			3
*PSYC	110 Prin. of Applied Psyc.			3
	Total Credits	18	17	17

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]ACCT 211-212-213 [2]may be substituted for ACCT 111-112-113, with approval of Division. Three additional hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

[2]A business related elective may be substituted for BUAD 123, and ACCT 113, 213.

(Second Year: Fashion Merchandising)

*GOVT	180 Amer. Const. Govt.	3		
MKTG	109 Prin. of Salesmanship	3		
MKTG	110 Fund. of Fashion	3		
MKTG	217 Color, Line, & Design in Retailing	3		
BUAD	110 Human Relat. & Ldrshp. Tng.	3		
BUAD	241 Bus. Law & BUAD 242 or Elect.		3	3
MKTG	218 Fashion Mdse. (Buying & Control)		3	
MKTG	227 Adv. & Display		4	
MKTG	216 Mdse. Infor.		3	
ACCT	241 Prin. of Fed. Tax. (or Bus. Elect.)		3	
BUAD	276 Personnel Mgt.			3
MKTG	219 Fashion Sales Prom.			3
MKTG	209 Sales Mgt.			3
MKTG	298 Sem. & Proj.			3
	Total Credits	15	16	15

Total minimum credits for Fashion Merchandising Major — A.A.S. Degree = 98.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

(Second Year: Retail Merchandising)

BUAD	254 Appl. Bus. Statistics or Bus. Elect.	3		
DAPR	106 Prin. of Data Proc. or Elect.	3		
MKTG	109 Prin. of Salesmanship	3		
*GOVT	180 Amer. Const. Govt.	3		
BUAD	110 Human Relat. & Ldrshp. Tng.	3		
MKTG	216 Mdse. Infor.		3	
BUAD	241-242 Bus. Law or Elect.		3	3
MKTG	226 Mdse. Buying & Control		3	
MKTG	227 Adv. & Display		4	
ACCT	241 Bus. Taxes or Bus. Elect.		3	
BUAD	276 Personnel Mgt.			3
MKTG	228 Sales Prom.			3
MKTG	209 Sales Mgt.			3
MKTG	298 Sem. & Proj.			3
	Total Credits	15	16	15

Total minimum credits for Retail Merchandising Major — A.A.S. Degree = 98.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

MUSIC

ASSOCIATE IN ARTS DEGREE

Purpose: The Associate in Arts Degree curriculum in Music is designed primarily for students who wish to transfer to a four-year college or university to complete the baccalaureate degree in music or music education.

Special Curriculum Admission Requirements: An audition and interview by the music faculty is necessary prior to final acceptance in this program.

Special Curriculum Completion Requirements: Applied music students: Tuition fees are payable to the College. Studio charges are payable directly to applied music instructors.

Music Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL	111-112-113 Eng. Comp.	3	3	3
HIST	101-102-103 Hist. of West. Civ.	3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
MUSC	111-112-113 Music Theory	4	4	4
MUSC	Appl. Music (Major)	2	2	2
MUSC	Appl. Music (Minor)	1	1	1
MUSC	Chorus/Band/Orch/Ensemble	1	1	1
GENL	100 Orientation	1		
[1]Elective				3
	Total Credits	16	15	18
	(Second Year)			
	Science Elective	4		
MUSC	211-212-213 Adv. Music Theory	4	4	4
MUSC	221-222-223 Music History	3	3	3
MUSC	Appl. Music (Major)	2	2	2
MUSC	Appl. Music (Minor)	1	1	1
MUSC	Chorus/Band/Orch/Ensemble	1	1	1
ENGL	World Literature	3	3	
	Electives			6
	Total Credits	18	14	17

Total minimum credits for Music Major — A.A. Degree = 97.

[1]Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

NURSING

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: To prepare students as contributing members of the health team, rendering direct patient care as beginning practitioners of nursing in a variety of health service facilities. Upon graduation, students will be eligible to take the Virginia State Board of Nursing examinations leading to licensure as a registered nurse (R.N.).

Special Curriculum Admission Requirements: (1) High School courses: 1 unit each of Biology, Algebra, and Chemistry, with a minimum grade of "C". Deficiencies may be corrected in the Developmental Program before entering the Nursing curriculum. (2) Past achievement must reflect a "C" average. (3) Good physical and mental health which may need to be substantiated by a physician's report. The Nursing Program reserves the right to determine the student's final acceptance. (4) Students majoring in nursing are admitted in September; early application is desirable. Students may take support courses prior to entering the Nursing seven quarter sequence.

Transfer or prerequisite credits in the natural and social sciences earned at another institution will be evaluated on an individual basis. Developmental work or testing may be advised for credits earned more than ten years ago.

Special Curriculum Completion Requirements: Satisfactory health must be maintained for continuance in the program. Any student who receives a final grade less than "C" in any of the courses in the Nursing sequence must obtain permission from the Program Head to continue the major in nursing and must then repeat the course and earn a final grade of "C" or higher before taking the next course in the sequence. Students are totally responsible for transportation to and from the College and the various hospitals and other health agencies which are utilized for clinical laboratory experiences. The autotutorial method of learning will necessitate that the student utilize additional individual time in the campus laboratory and the library. Student uniform and accessories, and Nursing Student Liability Insurance are the financial responsibility of the individual Student.

Special Accreditation Status: The program is approved by the Virginia State Board of Nurse Examiners and has been granted accreditation by the National League for Nursing, Department of Associate Degree Programs.

Nursing Curriculum

		Credits			
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
NACS	111-112-113 Health Science	4	4	4	
*ENGL	111-112-113 Eng. Comp.	3	3	3	
PSYC	201-202-203 Gen. Psyc.	3	3	3	
NURS	121-122-113 Fund. of Nursing	5	6	8	
GENL	100 Orientation	1			
NURS	221 Nurs. in Major Hlth. Prob.				8
HLTH	100 Orient. Allied Health Careers	1			
	Total Credits	17	16	18	8
	(Second Year)				
*SOSC	101-102-103 Contemp. Amer. Civil.	3	3	3	
SOCI	101-102-103 Intro. Soc.	3	3	3	
NURS	222-223-224 Nurs. in Major Hlth. Prob.	8	8	8	
NURS	298 Sem. & Proj.			2	
	Total Credits	14	14	16	

Total minimum credits for nursing Major — A.A.S. Degree = 103.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

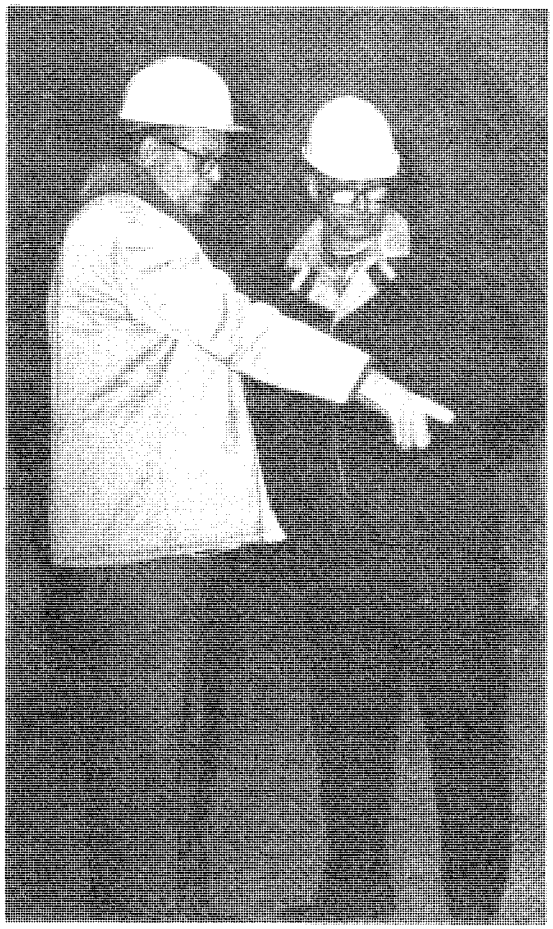
OCCUPATIONAL SAFETY & HEALTH TECHNOLOGY/INDUSTRIAL SAFETY ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This program is designed for those individuals pursuing a career in the field of Occupational Safety and Health. The program is developed in a manner to provide training and education necessary to meet the increased national emphasis in industrial safety programs for all levels and types of employment.

Special Curriculum Admission Requirements: Entry into the curriculum requires completion of the equivalent of 2 units of high school math and 1 unit (2 units preferred) of laboratory science.

Program Requirements: The program requires that 47 of 99 quarter hours needed for graduation be taken in specialized subject matter and the remainder to be in general education and supporting science courses. Upon completion of the six-quarter program, the graduate will be awarded an Associate in Applied Science Degree with specialization in industrial Safety.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education see page 33.



Occupational Safety & Health Technology

Industrial Safety Specialization

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
CHEM	101-102-103 Gen. Chem. (or CHEM 111-112-113 or PHYS 101-102-103)	4	4	4
MATH	161-162-163 College Math (or MATH 181-182-183)	3	3	3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm.			3
INDT	127 Safety & Hlth. Stand., Reg. & Codes	3		
INDT	136 Indus. Safety Design & Layout	3		
GENL	100 Orientation	1		
HLTH	146 Occupational Injury & Disease Control		3	
INDT	130 Safety Prog. Org. & Adm.		3	
PHED	100 Fund. of Phys. Act.		1	
INDT	116 Instrumentation for OSHA			3
INDT	134 Power Source Hazards Control			3
	Total Credits	17	17	16
	(Second Year)			
PSYC	128 Human Relations	3		
ARCH	250 Constr. Safety & Hlth.	3		
INDT	227 Sound and Noise	5		
PSYC	226 Psychological Aspects of Mgt.			3
INDT	251-252-253 Occup. Environ. I II III	3	3	3
PHED	Phys. Act. Elect.	1		1
PSYC	129 Interpersonal Relationships		3	
FIRE	120 Fire Protection Equipment & Systems		3	
INDT	236 Workplace Maintenance	3		
Drafting or Fire Elect.			3	
BUAD	110 Human Relat. & Ldrshp. Tng.		3	
INDT	225 Human Factors & Safety Psyc.			3
INDT	246 Manuf. Process Analysis			3
FIRE	116 Fund. of Fire Prevention			3
	Total Credits	18	15	16

Total minimum credits for Occupational Safety & Health Technology Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

Substitution for these courses can be made subject to division approval.

The Occupational Safety and Health Technology Program also includes a two year specialization in Industrial Health. To receive a full description of this curriculum, the entrance requirements, and the required courses, contact the Health and Public Services Division of the Alexandria Campus (703) 323-4251 or write:

Industrial Health
NVCC, Alexandria Campus
3001 N. Beauregard St.
Alexandria, Va. 22311

OFFICE ADMINISTRATION AND MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Pending Approval

Purpose: The curriculum is designed to prepare students in the management and supervision of large offices in terms of hiring, selecting, training and coordinating of office, secretarial and clerical personnel; and to provide to individuals currently employed in secretarial and clerical fields an opportunity to upgrade their skills and enhance their careers by enabling them to enter into a management area.

Special Curriculum Admission Requirements: Proficiency in high school English and Mathematics.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Office Administration and Management Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
GENL	100 Orientation	1		
BUAD	100 Intro. to Bus.	3		
BUAD	164 Prin. of Bus. Mgt.		3	
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
DAPR	106 Prin. of Data Proc.			3
*ECON	160 Amer. Econ.			3
*SPDR	136 Oral Comm.			3
*ENGL	111-112 Eng. Comp.	3	3	
BUAD	121,122 Bus. Math	3	3	
ACCT	211-212-213 Prin. of Acct.	3	3	3
SECR	111-112-113 Typewriting	3	3	3
	Total Credits	16	16	16
	(Second Year)			
	Business or DAPR Elective	3	3	
BUAD	110 Human Relat. & Ldrshp. Tng.	3		
*GOVT	180 Amer. Const. Govt.	3		
SECR	236 Specialized Type. App.		3	
*PSYC	110 Prin. of Appl. Psyc.		3	
PHED	Phys. Act. Elect.		1	
SECR	136 Filing & Records Mgt. (or DAPR 281)			3
BUAD	276 Personnel Mgt.			3
BUAD	114 Prin. of Supervision			3
PBSV	256 Interviewing Skills			3
BUAD	241-242 Bus. Law	3	3	
SECR	211-212-213 Off. Sys. & Proced.	4	4	4
	Total Credits	16	17	16

Total minimum credits for Office Administration and Management Major — A.A.S. Degree = 97.

*Substitutes for English and Social Science course for an A.A.S. Degree are listed on see page 35.

PHYSICAL THERAPIST ASSISTANT
ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to prepare students as skilled technical health workers who possess the knowledge and abilities that are necessary to assist the professional physical therapist in providing specific patient services for the prevention or alleviation of physical impairments. Upon successful completion of the Program, students are eligible to take the Virginia State Licensing Examination leading to licensure as a Physical Therapist Assistant.

Special Curriculum Admission Requirements: (1) High School courses; 1 unit each of Biology and Chemistry, with a minimum grade of "C". Deficiencies may be corrected in the Developmental Program before entering the technical program. (2) past achievement reflect a "C" average; (3) good physical and mental health which may need to be substantiated by a physician's report; (4) personal interview; (5) The Physical Therapist Assistant Program reserves the right to determine the student's final acceptance. Early application is desirable. Students may take support courses prior to entering the six quarter sequence of Physical Therapy courses. Transfer credits or prerequisites in the natural and social sciences earned at another institution will be evaluated on an individual basis. Developmental work or testing may be advised for credits earned more than ten years ago.

Special Curriculum Completion Requirements: Satisfactory health must be maintained for continuance in the program. Any student who receives a final grade less than "C" in any of the courses in the Physical Therapist Assistant Program sequence must obtain permission from the Program Head to repeat the course and earn a final grade of "C" or higher before taking the next course in the sequence. Students are totally responsible for transportation to and from the college and the various hospitals and other health agencies which are utilized for clinical laboratory experiences. Uniform and accessories, and PTA Student Liability Insurance are the financial responsibility of the individual student.

Special Accreditation Status: The program is approved by the American Physical Therapy Association.

Physical Therapist Assistant Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
*ENGL	111-112-113 Eng. Comp.	3	3	3
[1]PSYC	110 Prin. of Appl. Psyc.	3		
[1]PSYC	116 Psyc. of Per. Adj.		3	
[1]PSYC	Psyc. Elect.			3
NASC	111-112-113 Hlth. Sci.	4	4	4
GENL	100 Orientation	1		
PSTH	111-112-113 Therapeutic Skills	4	4	6
PSTH	100 Intro. to Phys. Ther. Asst.	2		
PSTH	190 Coord. Practice		4	
PSTH	120 Medical Reporting			2
	Total Credits	17	18	18
	(Second Year)			
*SOSC	101-102-103 Contemp. Amer. Civ.	3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
HLTH	150 Concepts of Disease	3		
PSTH	210 Psyc. Aspects of Therapy	3		
PSTH	290 Coord: Practice	5		5
PSTH	211 Therapeutic Skills		6	
PSTH	220 Clinical Kinesiology		4	
	Elective		3	
PSTH	298 Sem. & Proj.			5
	Total Credits	15	17	14

Total minimum credits for Physical Therapist Assisting Major —A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]PSYC 201-202-203 may be substituted for PSYC 110, 116 and PSYC Elect.

POLICE SCIENCE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide a broad foundation which will prepare the student to enter any of the varied fields of law enforcement or prepare for professional advancement. The occupational objectives include: Local, State and Federal Enforcement Officer / Police Officer / Private or Government Investigator.

Special Curriculum Admission Requirements: A personal interview with a member of the Police Science faculty is required. Students are advised that many criminal justice agencies require excellent moral character and a written record of conduct prior to consideration for employment. Adjustments in the curriculum may be made with Faculty approval to enable a student to transfer to a four year criminal justice program. This program is included under the Safe Streets Act of 1968 for L.E.E.P. grants and loans. See financial aids counselor for details.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Police Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
ADJU	100 Intro. to Law Enforce.	3		
ADJU	110 Patrol Admin.	3		
ADJU	117 Special Enforce., Prob.		3	
[1]ADJU	187 Traffic Admin. & Control			3
ADJU	126 Prev. & Control of Juv. Del.		3	
[1]ADJU	158 Intro. to Law Enforce. Photo			3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 Oral Comm. or ENGL 133 Eng. Comp.			3
SOCI	101-102-103 Intro. Soc.	3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	1	1
ADJU	176 Criminology	3		
GENL	100 Orientation	1		
[1]ADJU	140 Intro. to Security Admin.		3	
ADJU	237 Admin. of Justice			3
	Total Credits	17	16	16

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 29.

[1]Substitution for this course can be made subject to division approval.

	(Second Year)			
ADJU	114-115-116 Police Organ. & Administration	3	3	3
PSYC	201-202-203 Gen. Psyc.	3	3	3
ADJU	231-232-233 Crim. Law Evidence & Proc.	3	3	3
ADJU	254-255 Crim. Invest. Tech. (or ADJU 246-247)	3-4	3-4	
GOVT	281-282 U.S. Govt.		3	3
ADJU	228 Law Enforce. & the Comm.			3
ADJU	298 Sem. & Proj.			3
	Elective in Lab. Science[2]	4		
	Total Credits	16-17	15-16	18

Total minimum credits for a Police Science Major — A.A.S. Degree = 97.

[2]Laboratory Science course may be selected from Biology, Chemistry, Geology, Natural Science or Physics.

This is a terminal A.A.S. Degree Program. Adjustments in course requirements to suit the needs for transfer to a 4 year institution may be made with faculty approval.

POLICE SCIENCE

CERTIFICATE

Purpose: The certificate curriculum in Police Science is designed for those students who wish to take only those courses which relate directly to the law enforcement field. Courses taken in the certificate program can be applied to the A.A.S. Degree.

Special Curriculum Admission Requirements: The same requirements apply as stated for the A.A.S. Curriculum.

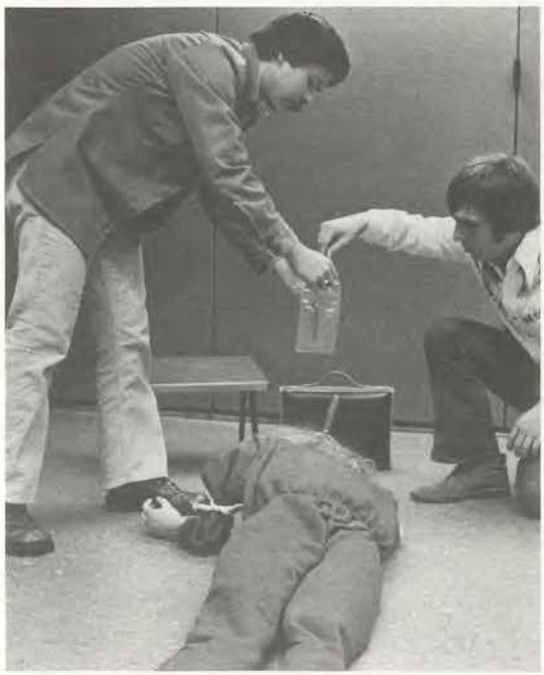
Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Police Science Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
ADJU	100 Intro. to Law Enforce.	3		
ADJU	110 Patrol Admin.		3	
ADJU	114-115 Police Organ. & Admin.	3	3	
ADJU	231-232-233 Crim. Law Evidence & Proc.	3	3	3
ADJU	140 Intro. to Security Admin.	3		
ADJU	117 Spec. Enforcement Prob.			3
ADJU	187 Traffic Admin. Control		3	
ADJU	246 Prin. of Crim. Invest.		3	
ADJU	126 Prev. & Control of Juv. Del.			3
GENL	100 Orientation	1		
ENGL	111 Eng. Comp.			3
	Soc. Sci. Elect.	3	3	3
	Total Credits	16	18	15

Total minimum credits for Police Science Major — Certificate = 49.

[1]Substitution for this course can be made subject to division approval.



REAL ESTATE

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in the real estate field or for those presently in the field who are seeking promotion. The occupational objectives include: Real Estate Salesman / Real Estate Broker / Apartment House Manager / Real Estate Office Manager / Real Estate Loan Officer / Real Estate Sales Manager / County Urban Planner.

Special Curriculum Admission Requirements: The students should possess a proficiency in high school English and a strong background in basic Arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
[1]ACCT	111-112-113 Accounting	4	4	4
BUAD	100 Intro. to Bus.	3		
BUAD	121-122 Bus. Math	3	3	
MKTG	166 Real Estate Math			3
*ENGL	111-112 Eng. Comp.	3	3	
*SPDR	136 ORAL COMM			3
*ECON	160 Amer. Econ.	3		
GENL	100 Orientation	1		
BUAD	164-165 Prin. of Bus. Mgt.		3	3
MKTG	164-165 Prin. of Real Estate		3	3
PHED	100 Fund. of Phys. Act.		1	
	Total Credits	17	17	16
	(Second Year)			
BUAD	241-242 Bus. Law	3	3	
[2]SECR	111 Typewriting or Elect.	3		
MKTG	268 Property Mgt.	3		
MKTG	267 Real Estate Appraisal	3		
*PSYC	110 Prin. of Applied Psyc.	3		
PHED	Phys. Act. Elect.	1		1
*GOVT	180 Amer. Const. Govt.		3	
MKTG	266 Real Estate Sales		3	
MKTG	269 Real Estate Finance		3	
	Elective		3	
MKTG	278 Real Estate Econ. or Elect.			3
MKTG	276 Land Planning & Use or Elect.			3
MKTG	277 Legal Aspects of Real Estate			3
MKTG	298 Sem. & Proj.			3
ACCT	241 Prin. of Fed. Tax.			3
	Total Credits	16	15	16

Total minimum credits for Real Estate Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]ACCT 211-212-213 may be substituted for ACCT 111-112-113 with approval of division. Three division hours will be required to meet degree requirements if ACCT 211-212-213 are selected.

[2]Student may petition for credit by examination.

REAL ESTATE

CERTIFICATE

Purpose: The curriculum is designed for present or future practioners in the profession who wish to improve or acquire understanding and knowledge of essential real estate subjects.

Special Curriculum Admission Requirements: Proficiency in high school English and background in basic arithmetic operations.

Real Estate Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
BUAD	100 Intro. to Bus.	3		
MKTG	109 Salesmanship or Acct. Elect.	3		
MKTG	164-165 Prin. of Real Estate	3	3	
	Soc. Sci. or Humanities Elect.	3		
MKTG	166 Real Estate Math		3	
BUAD	164 Prin of Bus. Mgt.		3	
MKTG	269 Real Estate Finance		3	
PSYC	Psyc. Elect.			3
MKTG	266 Real Estate Sales			3
MKTS	277 Legal Aspects of Real Estate			3
MKTG	Real Estate Elect.			3
	Total Credits	12	12	12

Total minimum credits for Real Estate Major — Certificate = 36.

RECREATION AND PARKS

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare for entry into the field of Recreation and Parks in both public and private agencies. It also has the objective of providing those already employed in these fields an opportunity to improve and upgrade their skills. The occupational objectives include: Assistant Recreation Supervisor / Recreation Leader / Park Manager / Assistant Park Manager / Park Ranger.

Special Curriculum Admission Requirements: Proficiency in high school English and background in basic arithmetic operation.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Recreation & Parks Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
	(First Year)			
ENGL	111-112 Eng. Comp.	3	3	
GENL	100 Orientation	1		
SOSC	101 Intro. to Sociology	3		
RCPK	100 Intro. to Rec. & Park Field	3		
RCPK	160 The Arts in Rec.	1		
	*Soci. Sci. Elective	3	3	3
BUAD	121 Bus. Math I	3		
[1]NASC	100 Survey of Science		4	
RCPK	101 Rec. & Park Mgt. I		3	
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	[2]Approved Rec. Art Elect.		2	
HORT	147 Hort. Methods & Materials for Rec.. & Park			3
RCPK	126 Nat. Resources & Urban Envir.			2
RCPK	136 Program Planning, Org. & Group Leadership			2
RCPK	137 Org. & Mgt. of Sports Act.			3
	[3]Approved Rec. Elect.			3-4
	Total Credits	17	16	17-18
	(Second Year)			
ACCT	111 Accounting I	4		
BUAD	174 Small Bus. Mgt. I	3		
RCPK	150 Private, Comm. & Indus. Rec.	3		
HORT	240 Turf Green Mgt.	3		
BUAD	241 Business Law I	3		
HORT	148 Landscape Planning for Rec. Areas		3	
RCPK	102-103 Rec. & Parks Mgt. II-III		3	3
PHED	Phys. Act. Elect.		1	
SPDR	136 Speech Communications		3	
RCPK	127 Park Planning		2	
RCPK	224, 225 Natural & Historical Interpretation in the Urban Env. I-II		2	2
RCPK	298 Seminar & Project			3
	[3]Approved Rec. Elect.		2-4	7-8
	Total Credits	16	16-18	15-16

Total Minimum credits for Recreation & Parks Major — A.A.S. Degree = 97.

[1]Substitutions of other lab sciences may be made with approval of Program Head.

[2]Approved Recreation Art Electives: RCPK 110 Applied Arts Major, RCPK 207 Rec. Drama, MUSC 296 Recreation Music.

[3]Recommended Electives (with Program Head Approval) RCPK 108 Rec. for Special Groups, RCPK 299 Supervised Study, RCPK 116 Soc. Rec. Leadership, FORE 117 Dendrology, RCPK 138 Fund. of Camp Mgt. & Oper., FORE 131 Fish. & Wildlife Mgt., RCPK 146 Comm. & Family Rec., HORT 146 Hort. Botany, RCPK 297 Co-op Ed., HRIM 156 Club Management.

RECREATION VEHICLE/ MOTORCYCLE MAINTENANCE

CERTIFICATE

Purpose: The curriculum is designed to train the student to be safe, knowledgeable motorcycle mechanics with the basic working experiences so that the individual is prepared for full-time employment as a mechanic, set-up or tune-up specialist. Complete theory and lab experiences for all motorcycle systems are included.

Special Curriculum Admission Requirements: Automotive Shop or equivalent.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Motorcycle Maintenance Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.
[1]RVEH	120 Intro. to Motorcycle Mech.	3		
RVEH	176 Two-Stroke Engines	3		
RVEH	177 Four-Stroke Engines	3		
MATH	118 Intro. to Tech. Math	5		
RVEH	126 Fuel Systems		3	
RVEH	156 Drive Trains		3	
RVEH	267 Suspensions		3	
ENGL/SPDR	Elective		3	3
PSYC	128 Human Relat.		3	
RVEH	116 Machine Lab.			3
RVEH	127 Elec. Systems			3
RVEH	197 Sem. & Proj. or Coop. Ed.			2
BUAD	174 Small Bus. Mgt.			3
	Total Credits	14	15	14

Total minimum credits for Motorcycle Mechanics Major Certificate = 43.

[1]Pre or Co-Requisite to all RVEH courses.

RESPIRATORY THERAPY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students as effective members of the health care team in assisting with diagnosis, treatment, management, control and preventive care of patients with cardio-pulmonary problems. Upon successful completion of the Program, students are eligible to take the registry examination leading to registration as an American Registered Respiratory Therapist (A.R.R.T.).

Special Curriculum Admission Requirements: (1) High School courses: 1 unit each of algebra, biology, & chemistry or physics; with a minimum grade of "C". Developmental work or testing may be advised for credits earned more than ten years ago. Transfer credits in the Natural Sciences earned at another institution will be evaluated on an individual basis; (2) Achievement must reflect a "C" average or better; (3) Good physical and mental health which may need to be substantiated by a physician's report.

Special Curriculum Completion Requirements: Satisfactory health must be maintained for continuance in the Program. Any student who receives a final grade less than "C" in any of the courses in the Respiratory Therapy sequence must obtain permission from the Program Head to repeat the course, and must earn a final grade of "C" or higher before taking the next course in the sequence. Students are totally responsible for transportation to and from the College and the various hospitals and other health agencies which are utilized for clinical laboratory experiences. Student uniform and accessories, and Respiratory Therapy Student Liability Insurance are the financial responsibility of the individual student.

Special Accreditation Status: The Program is approved by the Joint Review Committee for Respiratory Therapy Education, Council on Medical Education of the American Medical Association.

Respiratory Therapy Curriculum

		Credits 1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
	(First Year)				
NASC	141-142-143 Fund. Sci. for Resp. Therapy	4	4	4	
NASC	111-112-113 Health Sci.	4	4	4	
RPTH	136 Fund. Arts	3			
RPTH	144-145 Fund. Theory & Proc.		4	4	
RPTH	190; 290 Coord. Pract.			4	4
*ENGL	111-112 Eng. Comp.	3	3		
*ECON	160 Amer. Econ.		3		
GENL	100 Orientation	1			
HLTH	100 Orien. to Allied Hlth. Careers	1			
PHED	100 Fund. of Phys. Act. & 1 Elect.	1		1	
RPTH	231 Cardiopulmonary				3
	Total Credits	17	18	17	7
	(Second Year)				
RPTH	241-242-243 Fund. Theories & Proc.	4	4	4	
RPTH	290 Coord. Pract.	4	4	4	
RPTH	232-233 Cardio Pulmonary Sci.	4	4		
RPTH	236 Fund. Arts		3		
RPTH	298 Sem. & Proj.			2	
*GOVT	180 Amer. Const. Govt.	3			
PHED	Phys. Act. Elect.	1			
*ENGL	113 Eng. Comp.		3		
*PSYC	110 Prin. of Appl. Psyc.			3	
	Total Credits	16	18	13	

Total minimum credits for Respiratory Therapy Major — A.A.S. Degree = 106.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

SCIENCE

ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for persons who are interested in a pre-professional or scientific program and who plan to transfer to a four-year college or university to complete a baccalaureate degree program with a major in one of the following fields: Agriculture / Biology / Chemistry / Dentistry / Forestry / Geology / Home Economics / Mathematics / Pre-Medicine / Nursing / Physics / Physical Therapy / Pharmacy / Science Education.

Special Curriculum Admission Requirements: Satisfactory completion of the following high school units or equivalent as a minimum: 4 units of English / 3 units of college preparatory Mathematics / 1 unit of Laboratory Science / 1 unit of social Sciences.

Science Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
SCIENCE	(with lab)	4	4	4
MATH	141-142-143 or 161-162-163 [2]	3-5	3-5	3-5
ENGL	111-112-113 Eng. Comp.	3	3	3
HIST	101-102-103 or 111-112-113 [3]	3	3	3
PHED	100 Fund. of Phys. Act. & 2 Elect.	1	2	
GENL	100 Orientation	1		
	Elective			3
	Total Credits	15-17	15-17	16-18
	(Second Year)			
SCIENCE	(with lab) [1]	4-5	4-5	4-5
SCIENCE	Electives MATH 241-242-243 or MATH 261-262-263 or SCIENCE (with lab) [1]	3-5	3-5	3-5
SOCIAL SCIENCE	Elective [5]	3	3	3
ENGL	Amer. Eng. or World Lit.	3	3	3
	Electives [4]	3	3	3
	Total Credits	16-18	16-18	16-18

Total minimum credits for Science Major — A.S. degree = 97 of which 30 must be in Laboratory Science for Science Major, 30 combined Math and Science for Math Major.

[1] Science with lab may be selected from the following: Biology 101-102-103, Chemistry 111-112-113, Physics 201-202-203, Physics 221-222-223-224, Geology 101-102-103 or any 200 level Biology or Chemistry.

[2] Math 141-142-143 is strongly recommended for students majoring in Math, Physics or Chemistry. Math 191-192-193 may be taken by Biology major with division approval.

[3] Students with a good background in math and science may take two beginning Laboratory Science courses the first year and History the second year.

[4] Electives should be chosen carefully and after investigation of transfer requirements of the institution to which transfer is contemplated.

[5] Three quarter sequence Social Science courses may be selected from one of the following: Economics, Geography, Government, History, Psychology, Social Science or Sociology (Anthropology).

SECRETARIAL SCIENCE (ADMINISTRATIVE ASSISTANT)

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare persons for initial full-time employment in the secretarial, word processing, and administrative areas of business or to enhance and further develop job related competencies for those presently employed. The curriculum offers a specialization for preparation as an Administrative Assistant.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Administrative Assistant Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
SECR	111-112-113 Typewriting I-II-III	3	3	3
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	180 Bus. Eng.			3
[1]BUAD	121-122-123 Bus. Math	3	3	3
GENL	100 Orientation	1		
BUAD	100 Intro. to Bus.	3		
BUAD	164 Prin. of Bus. Mgt.		3	
BUAD	241 Bus. Law			3
SECR	136 Advanced Filing & Records Mgt.	3		
ACCT	111 Accounting or SECR 138		3-4	
ECON	160 Amer. Econ.			3
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
	Total Credits	16	16-17	16
	(Second Year)			
SER.	211-212-213 Office Systems & Procedures I, II, III	4	4	4
SECR	236 Spec. Typwr. Applications	3		
SECR	254-255 Adv. Mach. Trans. I, II	3	3	
*PSYC	110 Prin. of Appl. Psyc.	3		
*GOVT	180 Amer. Const. Govt.		3	
BUAD	242-243 Bus. Law or ACCT 112-113		3-4	3-4
SECR	156 Personal Dev.			3
BUAD	276 Personnel Mgt.			3
SECR	298 Sem. & Proj.			2
PHED	Phys. Act. Elect.	1		
[2]Electives		3	3	
	Total Credits	17	16-17	15-16

Total minimum credits for Administrative Assistant Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1] DAPR 106 or elective may be substituted for BUAD 123.

[2] Suggested Electives include SECR 121-122 or Related Business Electives.

SECRETARIAL SCIENCE/ EXECUTIVE SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or advancement in present employment in the executive secretary specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Executive Secretary Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
SECR	111-112-113 Typewriting I-II-III	3	3	3
SECR	121-122-123 Shorthand	4	4	4
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	180 Bus. Eng.			3
BUAD	100 Intro. to Bus.	3		
ACCT	111 Accounting or SECR 138		3-4	
[1]BUAD	121-122-123 Bus. Math	3	3	3
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
SECR	136 Filing & Records Mgt.			3
	Total Credits	17	17-18	17
	(Second Year)			
SECR	221-222-223 Adv. Shorthand Transcription I, II, III	3	3	3
SER.	211-212-213 Office Systems & Procedures I, II, III	4	4	4
*ECON	160 Amer. Econ.	3		
*PSYC	110 Prin. of Appl. Psyc.		3	
*GOVT	180 Amer. Const. Govt.			3
SECR	236 Spec. Typwr. Applications	3		
SECR	254 Adv. Mach. Transcription I		3	
PHED	Phys. Act. Elect.	1		
BUAD	241 Bus. Law	3		
BUAD	164 Prin. of Bus. Mgt.		3	
SECR	156 Personal Dev.			3
SECR	298 Sem. & Proj.			2
	Total Credits	17	16	15

Total minimum credits for Executive Secretary Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]DAPR 106 or Elect. may be substituted for BUAD 123.

SECRETARIAL SCIENCE/LEGAL SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or for advancement in present employment in the legal Secretary Specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Legal Secretary Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
SECR	111-112-113 Typewriting I-II-III	3	3	3
SECR	121-122-123 Shorthand	4	4	4
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	180 Bus. Eng.			3
[1]BUAD	121-122-123 Bus. Math	3	3	3
BUAD	100 Intro. to Bus.	3		
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Acct. & 1 Elect.		1	1
ACCT	111 Accounting or SECR 138		3-4	
SECR	136 Filing & Records Mgt.			3
	Total Credits	17	17-18	17
	(Second Year)			
[2]SECR	231-232-233 Legal Trans. I, II, III	3	3	3
[2]SECR	251-252-253 Legal Procedures	4	4	4
SECR	236 Spec. Typewriter App.	3		
SECR	254 Adv. Mach. Transcription I		3	
*PSYC	110 Prin. of Appl. Psyc.	3		
*ECON	160 Amer. Econ.		3	
*GOVT	180 Amer. Const. Govt.			3
BUAD	241-242 Bus. Law	3	3	
PHED	Phys. Act. Elect.		1	
SECR	156 Personal Dev.			3
SECR	298 Sem. & Proj.			2
	Total Credits	16	17	15

Total minimum credits for Legal Secretary Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

[1]DAPR 106 or Elective may be substituted for BUAD 123.

[2]SECR 231-232-233 should be taken concurrently with SECR 251-252-253.

SECRETARIAL SCIENCE/ MEDICAL SECRETARY

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare students for initial employment or for advancement in present employment in the Medical Secretary Specialization.

Special Curriculum Admission Requirements: The student should possess a proficiency in high school English and a strong background in basic Arithmetic operations.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Medical Secretary Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
SECR	111-112-113 Typewriting I-II-III	3	3	3
SECR	121-122-123 Shorthand	4	4	4
*ENGL	111-112 Eng. Comp.	3	3	
*ENGL	180 Bus. Eng.			3
BUAD	121-122 Bus. Math	3	3	
NASC	130 Body Structure & Function	3		
HLTH	124-125 Medical Terminology		3	2
GENL	100 Orientation	1		
PHED	100 Fund. of Phys. Act. & 1 Elect.		1	1
SECR	136 Filing & Record Mgt.			3
	Total Credits	17	17	16
	(Second Year)			
SECR	221-222 Adv. Shorthand Transcription I, II	3	3	
SECR	271-272-273 Sec. Proc. I, II, III	4	4	4
SECR	227 Medical Transcription			3
SECR	236 Spec. Typewriter App.	3		
SECR	254-255 Adv. Mach. Trans. I, II		3	3
*PSYC	110 Prin. of Appl. Psyc.	3		
*GOVT	180 Amer. Const. Govt.	3		
*ECON	160 Amer. Econ.		3	
SECR	156 Personal Dev.			3
HLTH	106 First Aid and Safety			3
PHED	Phys. Act. Elect.	1		
ACCT	111 Accounting or SECR 138		3-4	
	Total Credits	17	16-17	16

Total minimum credits for Medical Secretary Major — A.A.S. Degree = 99.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

SECRETARIAL SCIENCE — OFFICE SYSTEMS

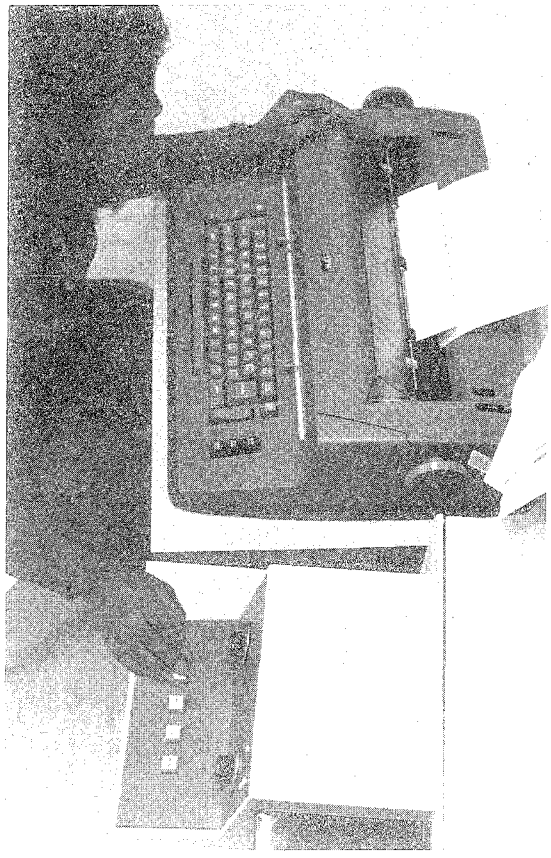
CERTIFICATE

Purpose: The one-year certificate program is designed to prepare students for entry-level office work. Upon completion of the program students will be able to secure positions as clerk typists, file clerks, receptionists, or general office workers. Additionally, students will be equipped to pass a Civil Service examination for typewriting (and for shorthand if students elect to take SECR 121, 122, and 123.

Office Systems Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
BUAD	100 Intro. to Business	3		
BUAD	109 Business Mach.	3		
ENGL	111 English Comp. I	3		
DAPR	106 Princ. of Data Proc.		3	
ENGL	180 Fund. of Bus. Eng.		3	
SECR	156 Personal Devel.			3
SECR	111-112-113 Type. I-II-III	3	3	3
SECR	136 Filing & Records Mgt.		3	
SECR	139 Clerical Procedures or SECR 211*			3
SECR	254 Machine Trans. I			3
	Total Credits	12	12	12

*SECR 211 may be taken only with the approval of program head.



SECURITY ADMINISTRATION

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum in Security Administration is designed to prepare students to enter any of the varied fields of security administration and to improve the competencies of in-service personnel. The occupational objectives include: Security Officer (private & governmental) / Security Supervisor or Administrator / Loss Prevention Officer / Classification Manager / Personnel Clearance and Airport Security.

Special Curriculum Admission Requirements: Entry into the Security Administration curriculum requires a personal interview with a representative of the Police Science Program. Students are advised that many criminal justice agencies require excellent moral character and a written record of conduct prior to consideration for employment.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Security Administration Curriculum

		Credit		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
ENGL	111-112 Eng. Comp.	3	3	
ENGL	113 Eng. Comp. or (SPDR 136 Oral Comm.)			3
PSYC	110 Prin of Appl. Psyc	3		
PSYC	116 Psyc. of Pers. Adjustment		3	
ADJU	140 Intro. to Security Adm.	3		
BUAD	164 Prin. of Bus. Mgt. or BUAD 276 Pers. Mgt.		3	
INDT	127 Safety & Hlth. Stand., Regs. & Codes		3	
BUAD	110 Human Rel. or (BUAD 276 Personnel Mgt.)			3
	Social Science Electives	3	3	3
PHED	100 Fundam. of Phys. Act. & 2 Elect.	1	1	1
ADJU	117 Spec. Enforcement Prob.			3
ADJU	146 Spec. & Current Sec. Prob.			3
FIRE	112 Haz. Mat. or (FIRE 120 Fire Prot. Equip.)	3		
	Total Credits	17	16	16
	(Second Year)			
ADJU	176 Criminology	3		
ADJU	109 Security Officer's Duties & Resp.			3
PBSV	256 Interviewing Skills	3		
ADJU	231-232-233 Crim. Law Evidence & Procedure	3	3	3
ADJU	276 Indust. & Comm. Security	3		
FIRE	237 Arson Detection & Invest.	3		
ADJU	126 Prev. & Cont. of Juv. Del.			3
INDT	170 Ind. Mgt. or INDT 176 Ind. Safety		3	
ADJU	277 Proprietary & Gov. Security & Adv. Crim. Inv.		3 3	3
ADJU	297 Coop. Ed. or Coor. Intern		3	3
ADJU	298 Sem. & Proj.			3
	Total Credits	15	15	18

Total minimum credits for Security Administration Major — A.A.S. Degree = 97.

*DAPR 106 May be substituted with Division approval.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

TECHNICAL ILLUSTRATION

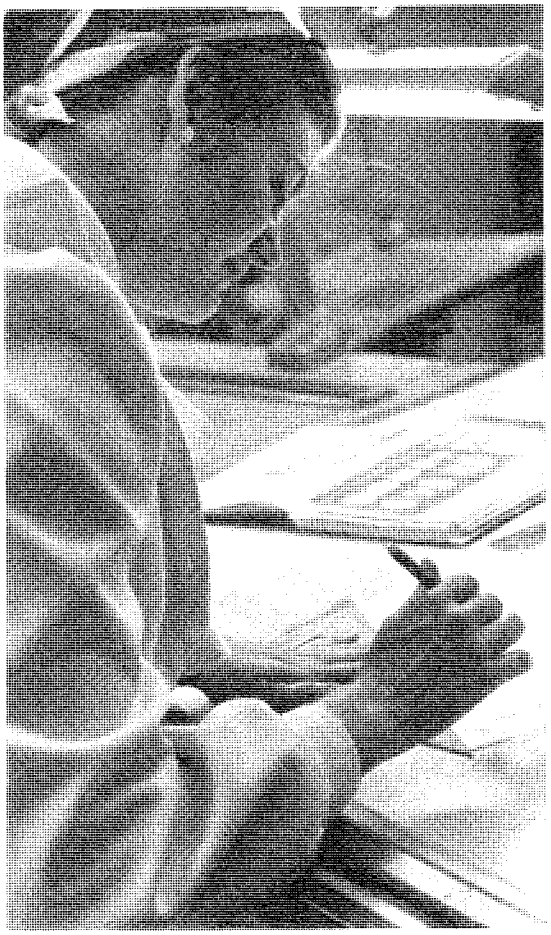
CERTIFICATE

Purpose: The curriculum is designed for persons who seek full-time employment in Technical Illustration or for those presently in the drafting field who are seeking specializations or promotion. The occupational objectives include: Technical Illustrator / Patent Draftsman / IPB (Illustrated Parts Breakdown) Draftsman.

Technical Illustration Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
ENGL/SPDR	Elective	3	3	
MATH	118-119 Intro. to Tech. Math	5	5	
DRFT	111-112-113 Tech. Draft	4	2	
DRFT	154-155 Tech. Illus.		3	3
DRFT	Draft. Electives		2-3	4-6
ENGR	100 Intro to Engr. Tech.	2		
	Tech. Elect.			3
DRFT	198 Sem. & Proj.			2
	Soc. Sci. Elect.	3		3
	Total Credits	17	15-16	15-17

Total minimum credits for Technical Illustration Major — Certificate = 47.



URBAN-REGIONAL PLANNING AND DEVELOPMENT

ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to provide students an opportunity to become familiar with urban-regional problems and planning theory; provide preparation in urban-regional studies; and prepare for employment at the Paraprofessional level. Graduates will be able to assist in phases of planning such as data gathering and analysis, in studies of land use, public facilities, transportation, housing, community services and population studies. The curriculum is concerned with laws and regulations dealing with planning and development, environmental impact and zoning. Occupational objectives include: Paraprofessional Positions in Planning and Development.

Cooperative Education: Students in this curriculum are urged to investigate the potential benefits of Cooperative Education. For further information, see page 33.

Urban-Regional Planning and Development Curriculum

		Credits		
	(First Year)	1st Qtr.	2nd Qtr.	3rd Qtr.
GENL	100 Orientation	1		
URPD	100 Survey of Plan. & Dev.	3		
URPD	106 Tech. Assessment	3		
DRAFT	120 Intro. to Graphic Rep.	3		
URPD	108 Urban-Reg. Plan. Etiology & Theory		3	
URPD	104 Land Use Plan. & Dev.		3	
CIVL	126 Topographic Drafting		3	
PHED	100 Fund. of Phys. Act.		1	
*ENGL	137 Tech. Writing			3
*SOCI	101 Intro. Sociology			3
ENVR	106 Intro. to Sanitation			3
URPD	116 Urban-Reg. Legis. & Reg.			3
BLDG	100 Intro to Constr. Insp. & Safety			3
DAPR	106 Prin. of Data Proc.			3
*ENGL	111-112 Eng. Comp.	3	3	
MATH	118-119 Intro. to Tech. Math	5	5	
	Total Credits	18	18	18
	(Second Year)			
URPD	200 Facilities Plan. & Devel.	3		
URPD	201 Plan. Procedures I	3		
INDT	176 Industrial Safety	2		
*SOCI	102 Intro. Sociology	3		
PHED	Elect.	1		
BUAD	254-255 Appl. Bus. Stat.	3	3	
URPD	207 Transportation Plan.		3	
URPD	202 Plan. Procedures II		3	
*PSYC	128 Human Relations		3	
PHED	Elect.		1	
URPD	203 Plan. Procedures III			3
URPD	206 Admin. of Planning			3
URPD	298 Sem. & Proj.			2
URPD	209 Adv. Techniques in Plan.			3
URPD	297 Coop. Educ.		2	2
	Total Credits	15	15	13

Total minimum credits for Urban-Regional Planning and Development Major — A.A.S. Degree = 97.

*For further explanation of English and Social Science course requirements for A.A.S. Degrees, see page 35.

WELDING

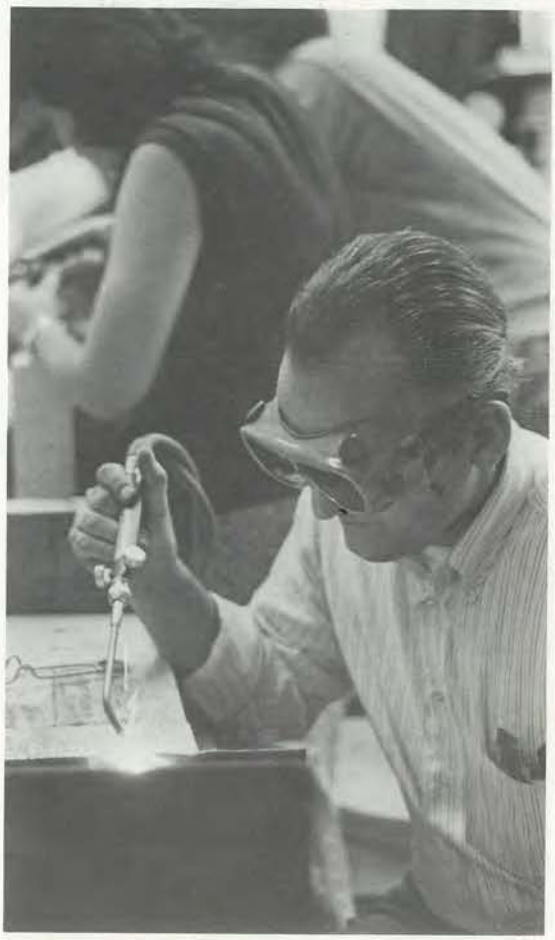
CERTIFICATE

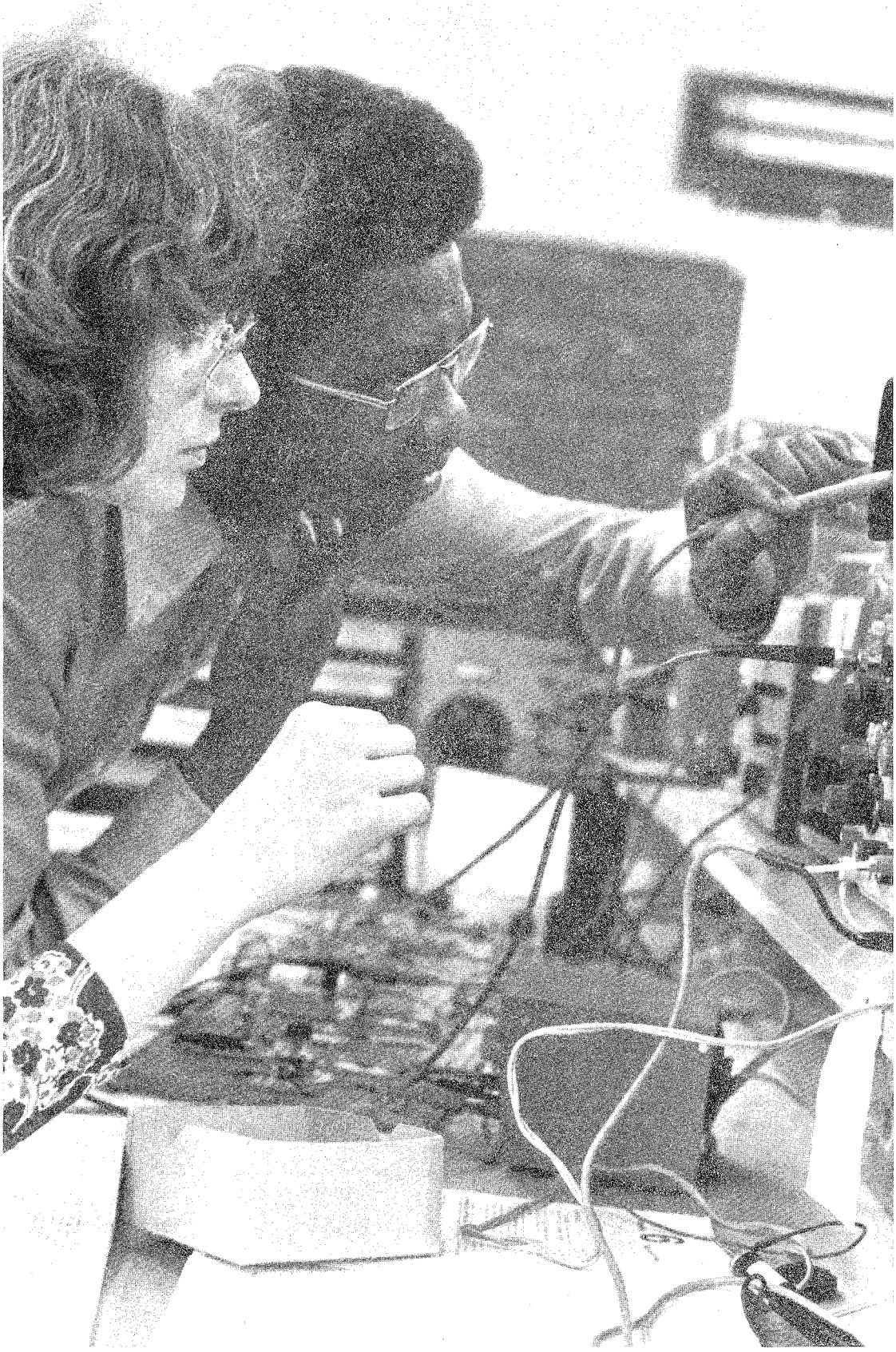
Purpose: The Welding Curriculum is designed primarily to prepare students for industrial employment as welder apprentices, welding instructors, structural steel inspectors, quality control inspector, welding equipment salesmen and metallurgical and welding laboratory assistants.

Welding Curriculum

		Credits		
		1st Qtr.	2nd Qtr.	3rd Qtr.
DRFT	111 Tech. Drafting I	2		
WELD	51 Oxyacetylene Welding I	3		
ENGL	100 Occupational English		3	
WELD	106 Pipe Welding		3	
BUAD	116 Personal Finance			3
PSYC	128 Human relations			3
WELD	30 Inert Gas Welding			3
WELD	60 Welding Quality Control			2
MATH	118-119 Intro. to Tech. Math	5	5	
WELD	21-22-23 Arc Welding	3	3	3
WELD	41-42-43 Welding Tests	2	2	2
DRFT	76 Welding Blueprint Reading	2		
	Total Credits	17	16	16

Total minimum credits for Welding Major Certificate = 49.





DESCRIPTION OF COURSES

Course Numbers

Courses numbered 01-09 are freshman level courses for the developmental program and for earned in these courses are not applicable toward an Associate Degree.

Courses numbered 100-299 are applicable toward an Associate Degree. They may also be used in certificate and diploma courses.

Course Credits

The credit for each course is indicated in parentheses after the title in the course description. One credit is equivalent to one collegiate quarter-hour credit or two-thirds of a collegiate semester hour credit.

Course Hours

The number of lecture hours in class each week (including lecture, seminar and discussion hours) and/or the number of laboratory hours in each week (including laboratory shop, supervised practice, and cooperative work experiences) are indicated for each course in the course description. The number of lecture and laboratory hours in class each week are also called "contact" hours because it is time spent under the direct supervision of a faculty member. In addition to the lecture and laboratory hours in class each week each student must spend some time on out-of-class assignments under his own direction. Usually each credit per course requires an average of three hours of in-class and out-of-class work each week.

Prerequisites

If any prerequisites are required before enrolling in a course, they will be identified in the course description. Courses in special sequences (usually identified by the numerals I-II-III) require that prior courses or their equivalent be completed before enrolling in the advanced courses; usually the corequisites must be taken at the same time. The prerequisites or their equivalent must be completed satisfactorily before enrolling in a course unless special permission is obtained from the division.

General Usage Courses

The following "General Usage Courses" apply to multiple curricula and may carry a variety of prefix designations. The descriptions of the courses are identical for each different prefix and are as follows:

90-190-290 Coordinated Practice (1-5 cr.)
Supervised practice in selected health agencies coordinated by the College. Credit/Practice Ratio maximum 1:5 hrs. May be repeated for credit. Variable hrs.

90-190-290 Coordinated Internship (1-5 cr.)
Supervised on-the-job training in selected business, industrial or service firms coordinated by the College. Credit/Work Ratio not to exceed 1:5 hrs. May be repeated for credit. Variable hrs.

97-197-297 Cooperative Education (1-5 cr.)
Supervised on-the-job training for pay in approved business, industrial and service firms coordinated by the College's Cooperative Education Office. Applicable to all curricula at the discretion of the College. Credit/Work Ratio not to exceed 1:5 hrs. May be repeated for credit. Variable hrs.

98-198-298 Seminar and Project (1-5 cr.)
Completion of a project or research report related to the student's occupational objective and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hrs.

99-199-299 Supervised Study (1-5 cr.)
Assignment of problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hrs.

ACCOUNTING

ACCT 111-112-113
Accounting I-II-III (4 cr.) (4 cr.) (4 cr.)
Fundamentals of accounting. The accounting cycle, journals, ledgers, working papers, and the preparation of financial statements under the various forms of business ownership. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

ACCT 126 Hotel/Restaurant Accounting (3 cr.)
The application of accounting principles and practices to the hospitality industry. Analysis of financial statements as the basis for managerial decisions. Lect. 3 hrs. per wk.

ACCT 146 Analyzing Financial Statements (3 cr.)
Prerequisite ACCT 111-112-113 or equivalent. An understanding and interpretation of financial statements including characteristics and financial statement analysis. Lect. 3 hrs. per wk.

ACCT 197 Cooperative Education (1-5 cr.)
(see page 91)

ACCT 211-212-213 Principles of Accounting I-II-III (3 cr.) (3 cr.) (3 cr.)
Accounting principles and their application to various forms of business inventory valuation, internal control systems, manufacturing processes, budgeting, and analysis of financial statements. Lect. 3 hrs. per wk.

ACCT 221-222-223 Intermediate Accounting I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Extensive analysis of the principle elements of accounting systems and statements. Lect. 4 hrs. per wk.

ACCT 229 Auditing (3 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Purposes of audit, relationships of auditor and client, kinds of audits, working papers, internal controls and examination of accounting systems, audit reports. Lect. 3 hrs. per wk.

ACCT 234-235 Cost Accounting I-II (3 cr.) (3 cr.)
Prerequisite ACCT 111-112-113 or ACCT 211-212-213. Studies in accounting systems, methods and statements involved in process and job cost accounting: use of standards and cost controls. Lect. 3 hrs. per wk.

ACCT 241 Principles of Federal Taxation I (3 cr.)
Principles of Federal Taxation as applied to individual income tax returns. Emphasis is made on preparation of tax forms and problems. Lect. 3 hrs. per wk.

ACCT 242 Principles of Federal Taxation II (3 cr.)
Prerequisite ACCT 241 or Division Approval. Principles of federal taxation as applied to corporate and partnership tax concepts and problems. Emphasis is placed on minimizing income tax burden through evaluation of business transactions. Lect. 3 hrs. per wk.

ACCT 243 Principles of Federal Taxation III (3 cr.)
Prerequisite ACCT 242 or Division Approval. A study of the law of federal income taxation designed to provide the student with a working knowledge of federal estate and federal gift taxes. Special emphasis is placed on federal tax questions, profit sharing plans, and foreign income. Lect. 3 hrs. per wk.

ACCT 256 Governmental Accounting (3 cr.)
Prerequisites ACCT 111-112-113 or ACCT 211-212-213 or divisional permission. Application of general accounting principles to governmental and institutional unit. Special emphasis placed upon auditing and financial reporting through budgetary accounting and its potential usefulness in planning and controlling revenues and expenditures. Lect. 3 hrs. per wk.

ACCT 297 Cooperative Education (1-5 cr.)
(see page 91)

ACCT 298 Seminar and Project (1-5 cr.)
(see page 91)

ACCT 299 Supervised Study (1-5 cr.)
(see page 91)

ADMINISTRATION OF JUSTICE

ADJU 100 Introduction to Law Enforcement (3 cr.)
The philosophy and history of law enforcement, overview of crime and police problems; organization and jurisdiction of local, state, and Federal law enforcement agencies; survey of professional career opportunities and qualifications required. Lect. 3 hrs. per wk.

ADJU 109 Security Officers—Duties and Responsibilities (3 cr.)
A broad overview of the theory and practice of duties of security officers, guards, watchmen, merchant police and private police—leading toward the objective of licensing and professionalization. Lect. 3 hrs. per wk.

ADJU 110 Patrol Administration (3 cr.)
Examines the various types of patrol and their importance to the overall police function. Emphasis is upon the responsibilities and problems of the administrators and supervisors of a field level law enforcement office; the most efficient methods of the assignment of personnel in order to prevent crime, provide needed police services and protect the community. Lect. 3 hrs. per wk.

ADJU 114 Police Organization and Administration I (3 cr.)
Prerequisite ADJU 100 & 110. A consideration of police problems at the administrative level. The organization and management of line operations as well as staff and auxiliary services are examined, including investigative, juvenile, and vice units. Lect. 3 hrs. per wk.

ADJU 115 Police Organization and Administration II (3 cr.)
Prerequisite ADJU 114 or divisional approval. A continuation of the analysis of the administrative function begun in ADJU 114. Among the topics included are the organization and management of the personnel, internal control, planning and research, and housing and materiel functions. Lect. 3 hrs. per wk.

ADJU 116 Police Organization and Administration III (3 cr.)
Prerequisite ADJU 114-115. Principles of organization and administration as applied to the records and communication systems of an urban department, including police utilization of data processing, and the concepts of custody, central services, and logistics. Lect. 3 hrs. per wk.

ADJU 117 Special Enforcement Problems (3 cr.)
Crowd control during civil demonstrations, picketing, rioting and other emergency situations, the police role in civil defense; police problems caused by narcotics addiction; the handling of mentally or emotionally abnormal persons. Lect. 3 hrs. per wk.

ADJU 120 Introduction to Corrections (3 cr.)
(Corrections) The philosophy and overview of Corrections and related problems as an important dimension in the administration of justice; history of corrections, career opportunities, purposes of correctional jurisdictions. Lect. 3 hrs. per wk.

ADJU 124 Jail Operations and Management I (Basic) (3 cr.)
(Corrections) Correctional history as a frame of reference: security procedures in jail operation; the effect of the jail climate on inmates and personnel; criteria for effective supervision of prisoners; correctional aspects of inmate discipline; handling special prisoners. Lect. 3 hrs. per wk.

ADJU 125 Jail Operations and Management II (Advanced) (3 cr.)
(Corrections) The functions of jail management as it relates to jail and community programs, planning of jail operation, legal problems in jail administration, community relations, personnel supervision. Lect. 3 hrs. per wk.

ADJU 126 Prevention and Control of Juvenile Delinquency (3 cr.)
Survey of youth crime stressing the police role in community programs of prevention and control. The philosophy and functioning of the juvenile courts are studied and related to the juvenile program. Lect. 3 hrs. per wk.

ADJU 127 Criminal Offenses (3 cr.)
(Corrections) The study of particular types of crime with emphasis on the pathology of criminals. Lect. 3 hrs. per wk.

ADJU 128 Criminal Behavior (3 cr.)
(Corrections) Analysis of relationship of society, socialization, and deviancy. Social responses to deviancy and criminal offenders. Lect. 3 hrs. per wk.

ADJU 129 Treatment of the Offender (3 cr.)
(Corrections) The theory, practice and problems in the fields of probation and parole as well as in institutional and community treatment of juvenile and adult offenders. Lect. 3 hrs. per wk.

ADJU 140 Introduction to Security Administration (3 cr.)
The historical, philosophical, and legal basis of security. The role of security in a modern society. A survey of the administrative, personnel, and physical aspects of the security field. Lect. 3 hrs. per wk.

ADJU 146 Special and Current Security Problems (3 cr.)
An analysis of special problem areas such as security education and training, community relations, white-collar crime, drug abuse, theft control, shoplifting, document control, subversion and sabotage, protection of classified information and business espionage, labor problems, civil disturbances, natural and man-made disasters. Lect. 3 hrs. per wk.

ADJU 155 Assessment of the Correctional Process (3 cr.)
(Corrections) The effectiveness of the courts, penal institutions, probation and parole agencies, and community based correctional facilities in improving and rehabilitating the offender will be assessed. Emphasis will be placed on evaluating standards for effective correctional institutions and programs. Lect. 3 hrs. per wk.

ADJU 156 Corrections and the Community (3 cr.)
(Corrections) The relationship of social norms to both conforming and deviant behavior. Emphasis on the rehabilitation aspects of criminals and their return to the community. Lect. 3 hrs. per wk.

ADJU 157 Assessment of Criminology (3 cr.)
(Corrections) The nature and theories of criminal assessment including the techniques and tests used in assessing the behavior and rehabilitative aspects of the criminal. Lect. 3 hrs. per wk.

ADJU 158 Introduction to Law Enforcement Photography (3 cr.)
Techniques of photography and their application to law enforcement situations. Dark room operations, theory and practice; field and laboratory exercises; fundamentals of court room presentation of photographic evidence. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ADJU 159 Legal Challenge to Corrections (3 cr.)
(Corrections) Examines legal changes occuring within and without the criminal process which have implications for corrections; analysis of legal problems related to sentencing, probation, parole, prisoners' rights, loss and restoration of civil rights. Lect. 3 hrs. per wk.

ADJU 176 Criminology (3 cr.)
Volume and scope of crime, and the background of criminal behavior in the American setting; organized crime and its affiliated problems; subjective theories and explanation of crime; the control, treatment and rehabilitation of the criminal offender. Lect. 3 hrs. per wk.

ADJU 187 Traffic Administration and Control (3 cr.)
Traffic problems confronting the field law enforcement administrator, modern methods of traffic facilitation and control, techniques of selective enforcement and police responsibilities in special situations. Lect. 3 hrs. per wk.

ADJU 190 Coordinated Internship (1-5 cr.)
(see page 91)

ADJU 197 Cooperative Education (1-5 cr.)
(see page 91)

ADJU 228 Law Enforcement and the Community (3 cr.)
An examination of the current efforts undertaken by the police to achieve an effective working relationship with the community. Among the topics studied in depth are the police image, crisis areas, public and police attitudes, and community relations activities. Lect. 3 hrs. per wk.

ADJU 231-232-233 Criminal Law Evidence and Procedures I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite 2nd year standing or permission of program. Note: ADJU 231-232-233 may be taken out of sequence with divisional approval. Major crimes; their classification, elements of proof, intent, conspiracy, responsibility, parties and defenses. Emphasis on the common law and Virginia adaptions. Kinds, degrees, and admissibility of evidence; methods and techniques of its acquisition, use in criminal proceedings, moot court activities. Review of court systems with emphasis on procedures from incident to final disposition of the accused and on applicable principles of criminal and civil law. Intended to satisfy transfer requirements for one year of Criminal law. Lect. 3 hrs. per wk.

ADJU 237 Administration of Justice (3 cr.)
Review of court systems with emphasis on procedures from incident to final disposition of the accused and on applicable principles of criminal and civil law. Includes field trips and guest lectures by representatives of local agencies and tribunals. Lect. 3 hrs. per wk.

ADJU 246 Principles of Criminal Investigation (3 cr.)
Conduct at the crime scene; collection and handling of evidence; interviewing and interrogations; obtaining statements, admissions and confessions; testifying in court. Practical exercises are included. Lect. 3 hrs. per wk.

ADJU 247 Advanced Criminal Investigation (3 cr.)
Prerequisite ADJU 246. Continued study of the investigative process; introduction to scientific aids and examinations; application of investigative techniques to specific offenses. Practical exercises are included. Lect. 3 hrs. per wk.

ADJU 254 Criminal Investigation Techniques I (4 cr.)
Prerequisite 2nd year standing or permission of program. Crime scene searches; collection and preservation of evidence; interrogations and interviews; obtaining statements, admissions and confessions; testifying in court. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

ADJU 255 Criminal Investigation Techniques II (4 cr.)
Prerequisite ADJU 254. A continuation of the study begun in ADJU 254. Advanced laboratory work relating to investigations; introduction and use of scientific aids and examinations; application of investigative techniques to specific offenses. Lect. 3 hrs., Lab 2 hrs., Total 5 hrs. per wk.

ADJU 276 Industrial and Commercial Security (3 cr.)
Organization, methods, techniques and equipment for physical protection of industrial and commercial facilities and prevention of theft of merchandise and valuables by persons within and without those facilities. Practical exercises are included. Lect. 3 hrs. per wk.

ADJU 277 Proprietary and Governmental Security (3 cr.)
Prerequisite ADJU 276, or departmental approval. Parallel Course ADJU 254. Continuation and expansion of principles and procedures begun in ADJU 276. Field work and visits to various types of establishments and installations. Inquiry into internal controls of organization. Application of investigative procedures and techniques. Lecture and demonstrations. Lect. 3 hrs. per wk.

ADJU 287 Elementary Principles of Probation and Parole (3 cr.)
Prerequisite ADJU 120. Probation and Parole as methods for treating offenders; history; organization and administration; eligibility; selection; revocation and termination; procedures and techniques; trends. Lect. 3 hrs. per wk.

ADJU 289 Correctional Counseling (3 cr.)
The principles and processes of counseling in correctional facilities; and other related fields. Major aspects of counseling theory and principles along with practical applications of same. Lect. 3 hrs. per wk.

ADJU 290 Coordinated Internship (1-5 cr.)
(see page 91)

ADJU 297 Cooperative Education (1-5 cr.)
(see page 91)

ADJU 298 Seminar and Project (1-5 cr.)
(see page 91)

AGRICULTURE

AGRI 116 Animal Breeds and Identification (3 cr.)
Common breeds of large and small domestic animals. Breed characteristics and fundamental breeding and management procedures. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AGRI 151-152-153-154 Laboratory Techniques I-II-III-IV (1 cr.) (4 cr.) (4 cr.) (4 cr.)
Prerequisite division permission. Hematology, urinalysis, bacteriology, mycology, radiology, and restraint procedures as related to assisting in the practice of veterinary medicine. Lect. 0-2-2-2 hrs., Lab. 3-6-6-6 hrs., Total 3-8-8-8 hrs. per wk.

AGRI 155-156 Anatomy and Physiology I-II (4 cr.) (4 cr.)
Applied study of structure and function of the normal body of domestic and laboratory animals. Lect. 2-2 hrs., Lab 6-6 hrs., Total 8-8 hrs. per wk.

AGRI 161-162-163-164 Clinical Practices I-II-III-IV (3 cr.) (4 cr.) (4 cr.) (4 cr.)
Prerequisite division permission. Study of practical experience in sterilization, sanitation, surgical procedures, record keeping, professional ethics and other necessary practices and procedures related to assisting in the practice of Veterinary Medicine. Lect. 2 hrs., Lab. 3-6-6-6 hrs., Total 5-8-8-8 hrs. per wk.

AGRI 214-215 Animal Diseases I-II (2 cr.) (2 cr.)
Discussion of animal health and disease, surgical techniques, and animal behavior. Demonstrations and selected observation and practice in animal hospitals, clinics or research laboratories are included as applicable. Lect. 1-2 hrs., Lab. 3-0 hrs., Total 4-2 hrs. per wk.

AGRI 219 Animal Pharmacology (4 cr.)
Prerequisite division permission. Drugs and other medical substances of veterinary importance, including characteristics, usage, measurement, administration and storage. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

AGRI 260 Animal Nutrition (3 cr.)
The principles of nutrition, digestion, and metabolism and their application to feed practices. Analysis of individual feeds and ration requirements. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

AGRI 290 Coordinated Internship (1-5 cr.)
(see page 91)

AGRI 298 Seminar and Project (2 cr.)
(see page 91)

AIR CONDITIONING AND REFRIGERATION

AIRC 101-102-103 Principles of Refrigeration I-II-III (4 cr.) (4 cr.) (4 cr.)
A study of refrigeration principles and systems, characteristics of refrigerants, compressors, condensers, evaporators, float valves, expansion valves; compression and absorption systems; temperature and pressure control; electrical controls for climate control units; electrical motors and motor controls, starters, relays, overloads, and control circuits. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AIRC 110 Principles of Air Conditioning (4 cr.)
Heat load calculations, psychrometrics, and systems for control of temperature and humidity. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AIRC 111-112-113 Air Conditioning & Refrigeration Electricity I-II-III (3 cr.) (3 cr.) (3 cr.)
Study of electronic theory, magnetism, Ohm's Law, resistance, current flow, instruments for electrical measurements, AC motors, power distribution controls and their application to refrigeration. Lect. 2 hrs., Lab 2 hrs., Total 4 hrs. per wk.

AIRC 114 Air Conditioning & Refrigeration Electricity I (3 cr.)
Electricity including electron theory, magnetism, Ohm's Law, current flow, and instruments for electrical measurement. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

AIRC 115 Air Conditioning & Refrigeration Electricity II (3 cr.)
Prerequisite AIRC 114. Sources of electrical energy, mechanical generators, power transmission, distribution, AC motors and their application to refrigeration and air conditioning. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

AIRC 120 Principles of Heating and Ventilating (4 cr.)
Types of systems and equipment used in the field and applications in obtaining and maintaining comfort in residential and commercial use. Types of heating systems; steam, hot water, and forced air. Calculations for deriving overall heat losses; electric panels and elements; heat-loss calculation forms used by industry; actual system components are made available. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AIRC 131-132-133 Circuits and Controls I-II-III (3 cr.) (3 cr.) (3 cr.)
A study of the types of circuits and controls which are used in air conditioning, heating and refrigeration for the home, industry, and commercial refrigeration systems, including electrical, electronic, pneumatic, and combination circuits. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AIRC 150 Air Distribution and Design (4 cr.)
Prerequisite AIRC 110. The selection and layout of equipment, duct design, and principles of low velocity air distribution. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AIRC 154-155 Combustion Devices I-II (3 cr.) (3 cr.)
Fuels, types of burners and their components, installation and servicing will be studied. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AIRC 156 Climate Control Heat Pump (3 cr.)
Theory of operation and control of the heat pump. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AIRC 199 Supervised Study (1-5 cr.)
(see page 91)

AIRC 200 Hydronics (4 cr.)
The design and installation of hydronic systems for heating and cooling. "Hydronics" includes steam heated and chilled water systems; primarily concerns systems using water under forced circulation. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

AIRC 211-212-213 Air Conditioning Controls I-II-III (3 cr.) (3 cr.) (3 cr.)
Electrical, pneumatic and electronic control circuits as applied to year round air conditioning systems. Reading wiring and schematic diagrams, trouble shooting, and designing high and low voltage control systems. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

AIRC 246 System Balancing and Testing (4 cr.)
Solutions to field problems experienced by test and balance engineers in the prevention of post-installation problems. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

AIRC 251-252-253 Air Conditioning Systems I-II-III (4 cr.) (4 cr.) (4 cr.)
Study of equipment used in cooling, heating, humidification, dehumidification, and air cleaning. Equipment components, installation, servicing and maintenance will be studied. Residential and commercial equipment will be covered. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AIRC 266 Industrial and Low Temperature Applications (4 cr.)
Use of primary, secondary, and expendable refrigerants in environmental testing; medical and clinical application; physical properties and uses of cryogenic fluids; use of refrigeration in manufacture of ice, construction of skating rinks, and in heavy construction industry. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

AIRC 297 Cooperative Education (1-5 cr.)
(see page 91)

ANTHROPOLOGY

(See Sociology Section)

ARCHITECTURE

ARCH 100 Introduction to Architectural Technology (3 cr.)
An intensive course outlining the history and impact of architecture. Emphasis on the dynamics and social aspects of architecture and society. Lect. 3 hrs. per wk.

ARCH 111 Architectural Drafting I (3 cr.)
Designed to provide a fundamental knowledge of the principles and techniques of architectural drafting used in professional offices. Skills in the use of architectural drafting materials and equipment are developed. Geometric construction, orthographic instrument drawing of principal views, isometric and oblique drawing, lettering, basic dimensioning, notation, significance of line weights, line quality, and diagrammatic working drawing techniques are introduced in the development of simple plans, sections, elevations and details. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 112 Architectural Drafting II (3 cr.)
Prerequisite ARCH 111 or equivalent. Continuing the development of architectural drafting techniques and skills in the production of a limited set of working drawings for a house or a small commercial or civic structure, introducing materials indications, crossreference systems and symbols, analytic solutions of drafting problems involving auxiliary views, intersections and developments, development of construction details, and the drawing of scale and full size details from preliminary sketches. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 113 Architectural Drafting III (3 cr.)
Prerequisite ARCH 112 or equivalent. Continuing the development of architectural drafting skills in the process of relating plan, sections, and elevations to site conditions and development using a topographic site survey in the production of a preliminary architectural site plan. Quick freehand perspective and rendering techniques used in architect's offices are introduced, and a set of preliminary drawings of the project reflecting design decisions are produced by the students. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 164 Materials and Methods of Construction I (3 cr.)
Designed to introduce the materials used in erection of structures, the physical properties and structural characteristics of steel, concrete, timber, glass, related materials and the methods used in testing materials. Lect. 3 hrs. per wk.

ARCH 165 Materials and Methods of Construction II (3 cr.)
Prerequisite ARCH 164. Designed to introduce the practical use of materials and methods of structures. The architectural and structural relationship of concrete, steel, and timber structures are analyzed with an introduction to cost analysis and the economic aspect involved in construction. Lect. 3 hrs. per wk.

ARCH 171 Specification Writing for General Construction I (3 cr.)
Relationship of specifications to design and working drawings, graphical versus narrative presentation, relating trades and materials, quality control for labor materials. Types of specifications, format and writing procedures; general conditions, requirements and responsibility of specifications; source of information, evaluation and language involved in specification writing. Legal aspects of specifications including bonds and insurance, bidding procedures, types of contracts and pre-bid documents. Lect. 3 hrs. per wk.

ARCH 197 Cooperative Education (1-5 cr.)
(see page 91)

ARCH 198 Seminar and Project (1-5 cr.)
(see page 91)

ARCH 199 Supervised Study (1-5 cr.)
(see page 91)

ARCH 204-205 History of Architecture I-II (3 cr.) (3 cr.)
The history of architecture from ancient times to the present but with emphasis on the designs and forms of twentieth century developments. Lect. 3 hrs. per wk.

ARCH 210 Site Planning (3 cr.)
The fundamentals of surveying required for site evaluation and planning. Principles of horizontal measurements, leveling, profiles, direction, coordinate systems, topographic maps, contours, horizontal and vertical curves, boundaries. Surveying methods and instruments demonstrated. Lect. 3 hrs. per wk.

ARCH 211 Architectural Drafting IV (3 cr.)
Prerequisite ARCH 113 or equivalent. Introduction to professional office organization and to working on a complex structure under simulated architectural office conditions. Coordinated preparation of architectural and structural plans, elevations, sections, details, schedules and specifications. Preparation of preplanned sheet layouts using a specific cross-reference system. Research and use of reference data. Stating of problems and possible solutions as a means of actively contributing to the process of obtaining prompt and accurate decisions. Special attention to clarity, brevity and completeness of information shown, and firm and authoritative drawing and lettering techniques for effective reproduction. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 212 Architectural Drafting V (3 cr.)
Prerequisite ARCH 211. Reintroduction of the design process for the purpose of developing drawings and details within the context of a design concept and demonstrating the entire production process within which the architectural draftsman works. Working on coordinated architectural, structural, mechanical and electrical design, working drawings, and specifications, of commercial or industrial structures under simulated architectural office conditions with the aid of faculty consultants. Use of building codes. Final assembly of the complete document for construction purposes. Time limits and the broad scope of the instruction demand a simple design quickly arrived at, with typical undivided floor plans and typical details. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 213 Architectural Drafting VI (3 cr.)
Prerequisite ARCH 212. The course concentrates on problems and solutions of the urban design context of the structure worked out in ARCH 212 and its immediate vicinity. Foundations and parking facilities under the structure are designed. Vehicular and pedestrian circulation, site development including pavements, planting, storm water drainage, street furniture, orientation, sunlight and air are considered. An actual site is chosen and local zoning regulations are used. The overall urban site is developed in block form with consideration of the major elements of economic feasibility. Special attention is given to scale and the environmental quality for the individual user. Freehand sketching. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARCH 236 Building Electric Equipment (3 cr.)
Prerequisite ARCH 237. Study of equipment, materials, and symbols. Building code requirements, pertaining to residential and commercial construction; reading and interpretation of working drawings by electrical engineers; coordination of electrical features with architectural and structural design. Lect. 3 hrs. per wk.

ARCH 237 Building Mechanical Equipment (3 cr.)
General study of heating, air conditioning, plumbing and electrical equipment, materials and symbols. Building code requirements pertaining to residential and commercial structures; reading and interpretation of working drawings by mechanical engineers; coordination of mechanical and electrical features with structural and architectural designs. Lect. 3 hrs. per wk.

ARCH 240 Field Inspections (3 cr.)
Provide working knowledge of methods and procedures of building construction inspection and technical reporting on the project site. Lect. 3 hrs. per wk.

ARCH 250 Construction Safety and Health (3 cr.)
An introduction into construction industry safety and health operations hazards control. Includes safety and health aspects and procedures relative to site clearing, demolition, excavation, building and highway construction with special emphasis placed on planning a safety program in the construction industry. Lect. 3 hrs. per wk.

ARCH 276 Construction Estimating (3 cr.)
Interpretation of working drawings for a project; preparation of material and labor quantity surveys from plans and specifications; approximate and detailed estimates of cost. The student will study materials take-off, subcontractors estimates of cost, and bid and contract procedures. Detailed inspection of the construction by comparing the finished work to the specifications. Lect. 3 hrs. per wk.

ARCH 277 Building Codes and Contract Documents (3 cr.)
A study of building codes and their effect in relation to specifications and drawings. The purpose and writing of specifications will be studied along with their legal and practical application to working drawings. Contract documents will be analyzed and studied for the purpose of client-architect-contractor responsibilities, duties and mutual protection. Lect. 3 hrs. per wk.

ARCH 279 Critical Path Method Program (3 cr.)
Working knowledge of C.P.M. programming and its implication for the building industry as a vehicle for control of project construction. Lect. 3 hrs. per wk.

ARCH 297 Cooperative Education (1-5 cr.)
(see page 91)

ARCH 298 Seminar and Project (1-5 cr.)
(see page 91)

ARCH 299 Supervised Study (1-5 cr.)
(see page 91)

ARTS

ARTS 91 Workshop in Watercolor (2 cr.)
A workshop for individual special projects in watercolor. Lab. 6 hrs. per wk.

ARTS 110 Art Appreciation (3 cr.)
A survey of art from prehistoric times to the present day. Architectural styles, sculpture, and painting by lecture and slide illustrations. Lect. 3 hrs. per wk.

ARTS 111-112-113 History and Appreciation of Art I-II-III (3 cr.) (3 cr.) (3 cr.)
The history and interpretation of architecture, sculpture and painting. The course begins with prehistoric art and follows the mainstream of western civilization to the present. Lect. 3 hrs. per wk.

ARTS 115 Art in World Culture (5 cr.)
The conceptual approach rather than historic with emphasis on the contemporary period. Designed to develop a non-technical, general, cultural understanding of the space arts such as architecture, painting, sculpture, graphics, and industrial design. Lect. 5 hrs. per wk.

ARTS 116 History of Printmaking (3 cr.)
A chronological history of the development of Printmaking techniques, including woodcut, etching, and engraving, lithography and serigraphy, from medieval to the present time. Emphasis on printmaking techniques in relation to art forms. Lect. 3 hrs. per wk.

ARTS 124-125-126 Drawing I-II-III (4 cr.) (4 cr.) (4 cr.)
Introduction to drawing skills, concepts, and media including pencil, ink, charcoal, pastel, and watercolor. Related gallery assignments and field trips. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 154-155-156 Design I-II-III (3 cr.) (3 cr.) (3 cr.)
Introduction to the concepts of two and three dimensional design and the theory and use of color. Field trips related to design concepts. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 157-158-159 Ceramics I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisites Design I or divisional permission. Problems in the design and production of functional and non-functional ceramic works, including handbuilding, use of the wheel, study of clays and glazes. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 170 Introduction to Graphic Skills (3 cr.)
Designed to provide basic studio skills necessary for the commercial art student. Emphasis is placed on the proper use of drafting equipment and other materials such as knives, pencils, pens, brushes, glues and papers. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 171-172-173 Typography I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 170. Instruction in the historical elements of letter forms, typefaces and their use in contemporary communications media. The emphasis is on application of this knowledge to specific design problems. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ARTS 174 Visual Literacy: The Photographic Image (3 cr.)
Study and discussion of photographic images (photographs and films) as forces on 20th century thought. Open to students of all disciplines. Lect. 3 hrs. per wk.

ARTS 175 Communicating through the Photographic Sequence (3 cr.)
Prerequisites ARTS 183, 284 and 285. This course, based on the concept that the experience of sequence in photography differs from the tradition of experiencing a single photograph, will involve the student in creating a picture book composed of images that have been placed in sequence that has special visual meaning. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 183 Introduction to Photography (3 cr.)
An introduction to the basic principles of photography with laboratory work related to the student's major field of interest. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 184-185 History of Photography I-II (3 cr.) (3 cr.)
Survey of the artistic achievements and innovations in photography and analysis of outstanding photographers and their works. Lect. 3 hrs. per wk.

ARTS 194-195 Film Making I-II (3 cr.) (3 cr.)
Study of the techniques of shooting and editing film, preparing documentaries, producing animated movies. Opportunity for students to create their own films. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 196 Art Workshop (2 cr.)
A workshop for individual special projects in art and crafts. Lab. 6 hrs. per wk.

ARTS 197 Cooperative Education (1-5 cr.)
(see page 91)

ARTS 200 Introduction to Primitive Art (3 cr.)
Survey of the visual arts of primitive cultures, including those of pre-history; of North and South American Indians, of Tribal Africa and Australia, of the Eskimos, etc. Lect. 3 hrs. per wk.

ARTS 201-202-203 Sculpture I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite ARTS 156 or divisional permission. Introduction to sculptural concepts and methods of production both traditional and contemporary, including work in plastics and metals. Field trips and other related assignments. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 206 The Growth of American Art (3 cr.)
A survey of the development of the fine arts in the United States from their colonial beginning to the present. Special emphasis will be given to the relationship between American crafts and fine arts, and the influence of historical events and economic ideals on the quality of the art produced. Lect. 3 hrs. per wk. Also offered as a videocourse—continuous registration, 24 wk. course that requires on campus viewing of video cassettes (through the Extended Learning Institute).

ARTS 211-212-213 Painting I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite ARTS 126 and ARTS 155 or divisional permission. Introduction to painting styles, materials, and techniques, both traditional and contemporary. Gallery Trips and other related assignments. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 214-215 Studio Lighting I-II (3 cr.) (3 cr.)
Prerequisites: ARTS 183, ARTS 291, ARTS 292. The study and use of large format cameras and studio lighting for commercial use, advertising photography, and formal studio portraiture. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ARTS 216-217 Commercial Photography I-II (3 cr.) (3 cr.)
Prerequisites: ARTS 183, ARTS 291, and ARTS 214. Must be enrolled concurrently in Studio Lighting II. The student will photographically solve a wide range of professional problems relevant to the fields of advertising, public relations, communications and publishing. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ARTS 227-228-229 Drawing IV-V-VI (3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 126 or divisional permission. Advanced study of concepts with emphasis on the drawing as a work of art, and on creative independence. Related gallery assignments. Lab. 6 hrs. per wk.

ARTS 234-235 Theory and Practice of Watercolor Painting I-II (3 cr.) (3 cr.)
Prerequisites ARTS 126 and ARTS 154. Abstract and representational painting in watercolor with emphasis on design, color, composition, and value. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 240 History of Design (3 cr.)
A study of the development of visual communication with examples from art history, graphic design and illustration. The influence of style, cultural trends and technological processes on the development of art forms with emphasis on the 19th and 20th centuries. Required for commercial art majors. Lect. 3 hrs. per wk.

ARTS 248-249 Visual Communications I-II (3 cr.) (3 cr.)
Prerequisites ARTS 154, ARTS 170. Advanced two dimensional design concepts applicable to all fields of commercial art. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 251-252-253 Advanced Design I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 156 or divisional permission. Concerned with the ordering and interpretive application of design elements (line, shape, form, texture, color, space, etc.) in two and three dimensions. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 254-255 Experimental Fabric Design I-II (3 cr.) (3 cr.)
Prerequisites ARTS 154-155. Introduction to simple fabric design techniques such as frame weaving, dye techniques, and printing design and application. Emphasis on creative design approach. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 256 Photographic Slides (3 cr.)
Prerequisites ARTS 183 and ARTS 291. Study of color slides, their potential and possibilities for creative expression. Students will learn to process their own slides as well as to experiment with their images. Critiques and slide lectures will focus on current use of slides by well known photographers. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ARTS 257 Magazine Design (3 cr.)
Prerequisites ARTS 170, ARTS 154 and ARTS 171. Design and production of the campus literature and arts magazine. Designing promotion material for its sale and the editing of art work submitted for entry. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ARTS 258 Newspaper Layout (3 cr.)
Prerequisites ARTS 170, ARTS 154 and ARTS 171. Design and production of the campus biweekly newspaper. Layout and possible contribution of graphics, cartoons, illustration, and photography for story assignments. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 260 Painting Techniques for Illustrators (3 cr.)
Prerequisites: ARTS 124, ARTS 125, ARTS 154, ARTS 155 or divisional permission. An introduction to the materials and techniques of water-based paints (watercolor, acrylics and gouache) as used in illustration. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 261-262-263 Advertising Design I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisites ARTS 154, ARTS 170, ARTS 171 and ARTS 248. A study of the principles of optical communications applied to advertising design in newspaper, magazines, and direct mail advertising. Analysis of the influence of contemporary art on layout. Lect. 2 hrs., Lab 3 hrs., Total 5 hrs. per wk.

ARTS 264-265 Silkscreen Design and Production I-II (3 cr.) (3 cr.)
Prerequisite ARTS 154. A study of silkscreen techniques with emphasis on design and communication. Design of products such as posters. Introduction to photo silkscreen techniques. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 266-267-268 Illustration I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 126 or Division permission. Introductory courses of methods and materials used in the following fields of Illustration: spot, product, story (book and magazine), fashion, furniture, news, reporting and cartooning. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 269 Advertising Photography (3 cr.)
Prerequisites ARTS 183, 291 and 293. A course designed as a sequel to ARTS 293; emphasis on sophisticated use of artificial lighting for commercial use. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ARTS 270 Zone System in Photography (3 cr.)
Prerequisites ARTS 183 and 291. Advanced study of the technical processes of photography leading to total control of film, exposure, metering, and development, including accurate previsualization. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ARTS 271-272-273 Graphic Techniques I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisites ARTS 154, ARTS 170, and ARTS 171. The use of drawing instruments and materials; introduction to engraving processes; and the mechanics of reproduction. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 278 Printmaking: Silk Screen (4 cr.)
Prerequisites ARTS 126 and ARTS 155 or divisional permission. Introduction to silk screen stencil techniques, styles, and materials. Field trips related to screen printing. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 279 Printmaking: Relief Printing (4 cr.)
Prerequisites ARTS 126 & 155 or Divisional permission. Introduction to relief printing processes and techniques including woodblock, linocut, and collograph. Field trips related to relief printing. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 280 Printmaking: Intaglio Printing (4 cr.)
Prerequisites ARTS 126 & 155 or Divisional permission. Introduction to intaglio printmaking processes including etching, engraving, dry point, and related techniques. Related Field trips. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

ARTS 284-285 Photojournalism I-II (3 cr.) (3 cr.)
Prerequisite ARTS 183. Techniques of communicating through the photo essay and analysis of newspaper and magazine standards of selection. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ARTS 289 Advanced Photographic Printing (3 cr.)
Prerequisites ARTS 183 and 291. Emphasis placed on developing individual style. Students required to produce a portfolio of high quality prints on subject matter of their choice. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 291-292-293 Advanced Photography I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ARTS 183. Advanced creative techniques in all areas of photography, stressing skill in lighting, portraiture, and commercial applications of photography. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

ARTS 297 Cooperative Education (1-5 cr.)
(see page 91)

ARTS 298 Seminar and Project (1-5 cr.)
(see page 91)

ARTS 299 Supervised Study (1-5 cr.)
(see page 91)

AUTOMOTIVE

AUTO 100 Automotive Shop Practices (3 cr.)
Shop practices for the automotive laboratory and shop safety, identification and use of hand tools, general power equipment and maintenance of an automotive shop. Basic operating procedures of installed shop equipment. Occupational Safety and Health act standards. A prerequisite for all automotive courses, except those in the Auto Machinist curriculum. Lect. 3 hrs. per wk.

AUTO 107 Automotive Disassembly and Inspection Techniques (3 cr.)
A study of disassembly procedures, cleaning methods and inspection techniques, including the proper use of measuring devices. Magnetic Particle and Dye Penetrant inspection is included with parts ordering procedures. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 109 Automotive Shop Fabrication Techniques (3 cr.)
A study and experience in the methods of fabricating equipment and fixtures for the Automotive Repair and Machine Shop. The course includes project planning, layout work, gas welding, arc welding, fasteners, and tool and fixture making. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 111-112-113 Automotive Engines I-II-III (4 cr.) (4 cr.) (4 cr.)
Analysis of power, cylinder condition, valves, and bearings in the automotive engine to establish the present condition, repairs or adjustments. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 114 Cylinder Block Service (4 cr.)
Basic cylinder block reconditioning to include boring, resleeving, line-boring and deck resurfacing. Repair techniques for damaged block and cylinder head castings to include cold welding, brazing, welding and epoxy. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 115 Cylinder Head Service (4 cr.)
Prerequisite AUTO 114. A study of cylinder head reconditioning to include valve seat grinding, refacing valves, servicing valve guides, valve seat inserts, cutting for valve seals and springs, thread repair and resurfacing mating surfaces. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 118 Automotive Turning Operations (4 cr.)
Principles and methods of lathe operations for fabrication, modifications and tool making. Includes brake drum and disc lathes. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 119 Crankshaft, Camshaft and Connecting Rod Service (4 cr.)
A study of the techniques of crankshaft and camshaft reconditioning to include grinding, polishing, straightening, welding, and balancing. Connecting rod service to include installing and reaming bushings, straightening, aligning, and balancing. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 120 Introduction to Automotive Machine Shop (4 cr.)
Pre- or corequisite for all other machinist courses. An introductory course in automotive machining operations emphasizing shop safety and the safe use of machine shop tools. The course survey's basic machining operations and specialized auto machining techniques necessary for reconditioning engine and chassis components. A basic set of machinists hand tools is required for this course. Lect. 3 hrs., Lab 3 hrs., Total 6 hrs. per wk.

AUTO 121-122 Automotive Fuel Systems I-II (4 cr.) (4 cr.)
Analysis of automotive fuel systems to include carburetors, fuel injection, superchargers, fuel pumps, filters, instruments, tanks and connecting lines. Complete overhaul, repairs and adjustment of fuel system components. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 126 Antipollution Systems (4 cr.)
Prerequisite AUTO 122. A study of various antipollution systems used on modern automobiles, installation, inspection, repair and service. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 128 Auto Mechanics (4 cr.)
The automobile, its systems, operating principles, problems, and basic repair techniques. The introductory diagnosis, disassembly, inspection, repair reassembly and adjustment of automobile components. AUTO 100 is co-requisite or pre-requisite. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 134 Automotive Inside Salesman (3 cr.)
A study of the duties and qualifications, including catalog and telephone use, invoicing, parts classification, salesmanship and customer relations. 3 Lect. hrs. per wk.

AUTO 135 Automotive Outside Salesman (3 cr.)
Prerequisite AUTO 134. A study of the duties and qualifications, including collections and collection practices, fleet and other accounts, techniques of product demonstration, salesmanship and customer relations. 3 Lect. hrs. per wk.

AUTO 136 Automotive Lubrication and Cooling Systems (3 cr.)
Testing and analysis of lubrication systems to include lubricants, pumps, lines, filter, and vents. Analysis of cooling systems, coolants, pumps, fans, lines and connections. Estimating repairs, adjustments needed and their costs. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 137 Consumer Auto Repair (2 cr.)
The basic study and practice of home maintenance and repair of automotive vehicles. To include basic theory of the automobile, hand tool selection and use, and the repair tasks able to be accomplished in the home garage without power equipment. For non-Automotive degree/certificate students only. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

AUTO 151-152 Auto Power Trains I-II (4 cr.) (4 cr.)
The operation, design, construction and repair of power train components: clutches, propeller shaft, universal joints, rear axle assemblies, fluid couplings, torque converters: 2, 3, and 4 speed standard, overdrive and automatic transmissions. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

AUTO 160 Basic Sheet Metal Operations (4 cr.)
Use of metal straightening tools, basic straightening operations, shrinking, filling, sheet metal damage and repair procedures. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

AUTO 165 Automotive Painting (4 cr.)
Knowledge and use of spray painting and painting materials including thinners, primers, lacquer, enamel, acrylics, rubbing components, waxes and cleaners. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

AUTO 167 Auto-Body Repair (4 cr.)
Understanding collision straightening procedures and equipment, planning repair procedures, disassembly techniques, body fastening systems, glass removal and replacement and panel repair and alignment. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

AUTO 168 Automotive Sheet Metal Preparation (4 cr.)
Using the materials, processes and equipment to prepare straightening metal and old finishes for painting. Includes sanding, cleaning, solvents, special materials, fillers and priming. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

AUTO 169 Automotive Frame Repair (4 cr.)
Determining frame and unit construction straightening processes, equipment use and measurement processes. Practice using pulling set-ups, typical repair procedures, pushing set-ups and gauges, and frame and body checking. Lect. 1 hr., Lab. 9 hrs., Total 10 hrs. per wk.

AUTO 181 Automotive Diagnostic Technology I (3 cr.)
Introduction to the principles of automotive maintenance using modern diagnostic methods. Theory and laboratory experiments designed to explain and illustrate the scientific basis of modern electronic and mechanical diagnostic procedures. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 197 Cooperative Education (1-5 cr.)
(see page 91)

AUTO 198 Seminar and Project (1-5 cr.)
(see page 91)

AUTO 201-202-203 Automotive Systems IV-V-VI (4 cr.) (4 cr.) (4 cr.)
Prerequisites AUTO 103 and MATH 113 or equivalent. Advanced theory and detailed study of automobile systems. Laboratory periods provide the student with actual field practice in trouble-shooting. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO Automotive Electrical Component Rebuilding I (4 cr.)
An introductory course in automotive electrical component rebuilding. It will acquaint the student with special equipment and procedures used in the component rebuild shop. Emphasis is on batteries, generators, and cranking motors. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO Automotive Electrical Component Rebuilding II (4 cr.)
Continuation of Automotive Electrical Component Rebuilding I. Emphasis is on alternators, distributors, and speedometers. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO Automotive Electronics (4 cr.)
An introduction to the field of electronics as it applies to the modern automobile. Emphasis is on basic circuit operation, diagnosis and repair of electronic ignition, fuel control, pollution control, braking control, digital indicator, and warning systems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 238 Automotive Air Conditioning (3 cr.)
Principles of refrigeration, air conditioning controls, and the adjustment and general servicing of automotive air conditioning systems. Lect. 3 hrs. per wk.

AUTO 241-242-243 Automotive Electricity I-II-III (4 cr.) (4 cr.) (4 cr.)
The theory of electricity and electrical circuitry as it applies to the automobile. The construction, operation, diagnosis and service of the automotive battery, starting, changing, ignition, lighting and power accessory systems. Diagnosis and testing performed with modern test equipment. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 267 Automotive Suspension & Braking Systems (4 cr.)
Analysis of front end suspensions and adjustment. Rear springs, braking system, and tire inflation check. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AUTO 268 Automotive Alignment (2 cr.)
Use of alignment equipment in diagnosing, adjusting, and repairing suspension problems. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

AUTO 281-282 Automotive Diagnostic Technology IV-V (3 cr.) (3 cr.)
Application of modern electronic and mechanical diagnostic procedures in the evaluation of the operational condition of automobiles. Safety and economy of operation are stressed. The student acquires actual diagnostic experience in the laboratory. Course content is: AUTO 281-Power Train diagnosis; AUTO 282 Brake and Suspension diagnosis. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 284-285 Automotive Service Procedures & Tune-Up I-II (3 cr.) (3 cr.)
Diagnostic and service procedures for automotive electrical and mechanical systems; use of tools and test equipment, evaluation of test results, estimation of repair cost, and performance of required service. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

AUTO 287-288 Shop Management and Customer Relations I-II (3 cr.) (3 cr.)
A study of shop layout, personnel and management, cost analysis, record keeping and quality control. The shop manager, service salesman, and service writer's role in customer relations. Lect. 3 hrs. per wk.

AUTO 297 Cooperative Education (1-5 cr.)
(see page 91)

AUTO 298 Seminar and Project (1-5 cr.)
(see page 91)

AVIATION

AERO 110 History of Air Transportation (3 cr.)
An informative, historical survey of the effort of manned flight, the development of aircraft, milestones in aviation, noted pioneers, and the socio-economic impact of flight upon modern civilization. Lect. 3 hrs. per wk.

AERO 126 Aviation in the United States (3 cr.)
The development and present status of air transportation. Federal legislation, characteristics and classifications of air carriers; the organization and functions of the Federal Aviation Administration and Civil Aeronautics Board. The state of aviation in the U.S. and other advanced countries. Potentials and problems. Survey of equipment and techniques in present day technology. Lect. 3 hrs. per wek.

AERO 127 Fundamentals of Flight (3 cr.)
Introduction to the basic principles of flight including applications of aerophysics, theory of flight, aircraft standards and specifications, basic airplane construction, weight and balance fundamentals. Lect. 3 hrs. per wk.

AERO 136 The National Airspace System (3 cr.)
A survey of the common system of facilities, equipment, regulations, procedures, and personnel providing services and standard procedures for the safe and efficient movement of aircraft. Lect. 3 hrs. per wk.

AERO 137 Aviation Safety (3 cr.)
A study of the fundamentals essential to safe flight; instruments used and the evaluation and interpretation of their indications. Weight and balance problems. Federal Aviation Regulations pertaining to safe flight. Use of the Airmen's Information Manual. Lect. 3 hrs. per wk.

AERO 140 Flight Attendants Orientation (3 cr.)
A history and background of the Air Hostess Career. The advantages and disadvantages of the career, to include stewardess/steward training schools, the subjects taught and standards levied by the various airlines. Lect. 3 hrs. per wk, includes field trips.

AERO 146 Flight Attendants Duties (3 cr.)
A step by step outline of the duties expected of a flight attendant from the 1st day of hire to separation from the airline. These include while in school, preflight, flight, and post flight. Lect. 3 hrs. per wk., includes field trips.

AERO 147 Flight Attendants Grooming and Apparel (3 cr.)
A complete over-view of the vital statistics looked for by the airlines and includes health, weight, height, posture, personality, sense of humor, and other qualities. Lect. 3 hrs. per wk., includes field trips.

AERO 176 Primary Flight (1 cr.)
A specific introduction to flight through actual flying experience in modern, safe, fully equipped aircraft. Sixteen hours of instruction are provided of which 10 hours are spent in dual flight and 6 hours in oral instruction and briefing. The program is sufficient to qualify a student pilot for solo flight. Optional for all Aviation Technology Programs. Estimated cost: $250 to $300. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk. NOTE: Solo flight is *not* included in this course.

AERO 197 Cooperative Education (1-5 cr.)
(see page 91)

AERO 246 Meteorology (4 cr.)
The interpretation of meteorological phenomena affecting aircraft flight. A study of the basic concepts of aviation meteorology: temperature, pressure, moisture, stability, clouds, air masses, fronts, thunderstorms, icing, fog. Analysis and use of weather data for flight planning and safe flying; interpretation of U.S. Weather Service maps, reports, and forecasts. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

AERO 247 Aviation laws and Regulations (3 cr.)
The course provides insight which is pertinent to Federal Aviation Agencies as well as international, federal and local laws forming the present structure of Aviation Law.

AERO 248 Aircraft Support Operations (4 cr.)
Logistics and services necessary to insure and support safe, efficient flight operations. Aviation supply and maintenance; loading and unloading; pre-flight checks and services. Logistical support enroute. Scheduled maintenance and operations. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AERO 256 AIR Navigation (3 cr.)
The basic elements of air navigation; the fundamentals and practical application of pilotage and dead reckoning, including the use of plotter, computer, aerial charts, Navigation Systems, and Federal Aviation Administration publications pertinent to flying. Lect. 3 hrs. per wk.

AERO 257 Radar, Radio Aids, and Communications (4 cr.)
Radar theory and use. Basic radio fundamentals as used by the pilot. Description and practical use of various radio aids to safe aerial navigation, including Very High Frequency Omni Direction Range (VOR), Instrument Landing System (ILS), Direction Finding (DF), and others. Charts and approach plates as adopted to radio navigation and the application of the Airmen's Information Manual. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

AERO 258 Airline Marketing (3 cr.)
The function of marketing in airline operations; market research; demand analysis; advertising and promotion; sales, traffic, and the theory of price determination. Lect. 3 hrs. per wk.

AERO 266 Airport Operations and Management (3 cr.)
A presentation of the major functions of airport management: organization, zoning, adequacy, financing, revenues, expenses, evaluation and safety. A study of the airport and its social-economic effect on the community. Lect. 3 hrs. per wk.

AERO 267 Airline Operations and Management (3 cr.)
The functions of management in airline operation; air carrier familiarization; effect of Federal regulations; organization, uniform system of accounts and reports, rules of practice in economic proceedings; industrial, financial and economic implications relative to decision making. Lect. 3 hrs. per wk.

AERO 290 Coordinated Internship (3 cr.)
(see page 91)

AERO 297 Cooperative Education (3 cr.)
(see page 91)

AERO 298 Seminar and Project (3 cr.)
(see page 91)

AERO 299 Supervised Study (3 cr.)
(see page 91)

BIOLOGY

BIOL 01 Biology (1-5 cr.)
A developmental course in general biology designed to develop a basic understanding of plant and animal life. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

BIOL 101-102-103 General Biology I-II-III (4 cr.) (4 cr.) (4 cr.)
Fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Diversity of living organisms; their structure, physiology and evolution. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 104-105 General Biology I-II (6 cr.) (6 cr.)
Fundamental characteristics of living matter from the molecular level and the ecological community with emphasis on general biological principles. Diversity of living organisms; their structure, physiology and evolution. Lect. 4 hrs., Lab. 6 hrs., Total 10 hrs. per wk.

BIOL 156 Foundations of Zoology (4 cr.)
Prerequisite high school biology. Fundamental biological principles of structure and function as applied to animals from the cell to organ systems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 158 Parasites of Domestic Animals (3 cr.)
Classification, life history, and control measures of the common species of parasites of domestic animals (internal and external). Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

BIOL 164 Pathology I (3 cr.)
The basic principles regarding alteration of the structure and function in disease and the genesis and effect of disease in the various organ systems. Lect. 3 hrs. per wk.

BIOL 176 Microbiology (4 cr.)
The characteristics and activities of micro-organisms, showing their essential relation to diagnosis, treatment, and prevention of disease. Fundamentals of bacteriology, mycology, and parasitology, emphasizing their relationships to individual community health. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 198 Seminar and Project (1-5 cr.)
(see page 91)

BIOL 199 Supervised Study (1-5 cr.)
(see page 91)

BIOL 206 Biological Problems in Contemporary Society (3 cr.)
Prerequisites: BIOL 103 or permission of instructor. A course designed for understanding some of the major problems of today's living. Contemporary readings will include topics on population problems, pollution, drug abuse, famine, ecology, conservation, disease, genetics, and evolution. Lect. 3 hrs. per wk.

BIOL 214 Introduction to Non-Vascular Plants (4 cr.)
Prerequisites BIOL 103 or equivalent or approval of division. Designed to cover the lower plants including the algae, fungi, and bryophytes. Studies of major taxonomic groups — their morphology, life cycles, ecology, physiology, economic importance. Sight recognition and collections may be required. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 215 Introduction to Vascular Plants (4 cr.)
Prerequisites BIOL 103 or equivalent or approval of division. Designed to cover the higher plants beginning with those that have vascular tissue, and including flowering and non-flowering plants. Studies of major taxonomic groups — their morphology, life cycles, ecology, physiology, economic importance. Sight recognition and collections may be included. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 221-222-223 Introductory Invertebrate and Vetebrate Zoology (4 cr.) (4 cr.) (4 cr.)
Prerequisites BIOL 103 or equivalent or approval of division. Fundamentals of invertebrate and vertebrate anatomy, physiology, embryology, classification and evolution. Lect. 3 hrs., Lab. 3 hrs., Total of 6 hrs. per wk.

BIOL 224-225 Introductory Vertebrate Zoology I-II (3 cr.) (3 cr.)
Prerequisite BIOL 103 or equivalent or approval of division. Fundamentals of vertebrate anatomy, physiology, embryology, classification and evolution. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

BIOL 234-235 Introductory Invertebrate Zoology I-II (3 cr.) (3 cr.)
Prerequisites BIOL 103 or equivalent or approval of division. The biology of invertebrate animals with special reference to structure, embryology, function, ecology, classification and evolution. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

BIOL 251-252 Human Anatomy and Physiology I-II (4 cr.) (4 cr.)
Prerequisites BIOL 103 and one year of college chemistry, or divisional permission. Consideration of basic biological principles as revealed by anatomical and physiological studies. An integrated study of the systems of the human body including gross and microscopic structures and their physiology. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BIOL 254-255 General Genetics I-II (3 cr.) (3 cr.)
Prerequisite one year of general biology or division approval. An introductory course in the science of genetics including the biochemical nature and function of the gene, classical Mendelian inheritance, cytogenetics, developmental and population genetics human genetics and aspects of genetic counseling. Students will also receive experience in experimental design and elementary statistical analysis of data. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

BIOL 264-265 General Ecology I-II (3 cr.) (3 cr.)
Prerequisite BIOL 103 or divisional permission. Study of the inter-relationships between organisms and the natural cultural environments with emphasis on survey of populations, communities and ecosystems. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

BIOL 268 Microbiology (6 cr.)
Prerequisite BIOL 103 and one year of college chemistry or division approval. Introduction to the morphology, genetics, physiology, ecology and control of microorganisms and to the nature of infectious diseases and immunity. The laboratory emphasized standard microbiological techniques. Lect. 3 hrs., Lab. 6 hrs., Total 9 hrs. per wk.

BIOL 276 Regional Flora (3 cr.)
Family characteristic of vascular plants including principal phylogency and classification based principally on local flora. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs., per wk.

BIOL 298 Seminar and Project (1-5 cr.)
(see page 91)

BIOL 299 Supervised Study (1-5 cr.)
(see page 91)

BROADCAST ENGINEERING

BCST 116 Broadcast Equipment Operation (5 cr.)
Prerequisite ELEC 125 Operation of cameras, studio lighting, audio control, video production switcher and transmitter, video control, operation of videotape recorders, routing switcher and telecine, full system operation. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

BCST 126 Broadcast Instruments and Measurements (4 cr.)
Prerequisite ELEC 116 and ELEC 126 Operation of meters, scopes, signal generators, digital counters and picture monitors. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

BCST 146 Federal Broadcast Regulations (1 cr.)
Students will read systematically through the applicable portions of the FCC Rules and Regulations and will be tested on each reading assignment, taking a final examination similar to the actual FCC Examination. Lect. 1 hr. per wk.

BCST 197 Cooperative Education (1-5 cr.)
(see page 91)

BCST 198 Seminar and Project (1-5 cr.)
(see page 91)

BCST 211 Theory of Broadcast Equipment (4 cr.)
Prerequisite ELEC 227 & ELEC 241 Theory of cameras, projection equipment, videotape recorders and NTSC encoders and decoders. Lect. 4 hrs. per wk.

BCST 212 Theory of Broadcast Equipment II (4 cr.)
Prerequisite BCST 211 — Continuation of BCST 211. Theory of production switchers, audio equipment, master control equipment and transmitters. Lect. 4 hrs. per wk.

BCST 224 Broadcast Equipment Maintenance I (3 cr.)
Corequisite BCST 211. Basic maintenance procedures, maintenance of cameras, projection equipment, videotape recorders and NTSC encoders and decoders. Lab. 9 hrs. per wk.

BCST 225 Broadcast Equipment Maintenance II (3 cr.)
Prerequisite BCST 244, corequisite BCST 212. Continuation of BCST 224. Maintenance of production switchers, audio equipment, master control equipment and transmitters. Lab. 9 hrs. per wk.

BCST 297 Cooperative Education (1-5 cr.)
(see page 91)

BCST 298 Seminar and Project (1-5 cr.)
(see page 91)

BUILDING

BLDG 100 Introduction to Construction Inspection and Safety (3 cr.)
Introduction to the construction inspection profession, qualifications of the inspector, methods and procedures for field report writing, records and public relations, safety on construction sites, and the legal aspects governing the construction inspector. Lect. 3 hrs. per wk.

BLDG 107 Plan Review and Building Codes (3 cr.)
Corequisite BLDG 100. A study and interpretation of the basic building codes as they relate to construction of residential, commercial and public facilities. Interpretation of working drawings and construction specifications for compliance to the basic building codes. Lect. 3 hrs. per wk.

BLDG 111 Principles of Residential Building Construction Inspection (3 cr.)
Corequisite BLDG 100. Introduction to the general principles of residential building inspection to include materials, foundations, framing, finishing and building codes. Lect. 3 hrs. per wk.

BLDG 112 Principles of Concrete and Concrete Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of concrete and new developments that directly apply to modern construction technology. Develop an understanding of the ingredients of concrete, properties of concrete, mix proportions and testing procedures which result in quality-controlled product, concrete form use and removal. Lect. 3 hrs. per wk.

BLDG 113 Principles of Steel Frame Construction and Inspection (3 cr.)
Prerequisites BLDG 100 or equivalent field experience. Fundamentals of modern steel framing methods and non-destructive testing methods. Introduction of the principles, techniques and materials used in the fire-proofing of steel structural elements utilized in construction projects to comply with national fire protection standards and local codes. Lect. 3 hrs. per wk.

BLDG 121 Principles of Electrical Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of electrical wiring systems used in residential, commercial and industrial buildings. Introduction to the principle of computing loads on circuits, services and equipment. The understanding of the national and local electrical codes for safe installation of wiring systems to include outlets, feeders and direct services. Lect. 3 hrs. per wk.

BLDG 122 Principles of Mechanical Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals and theory of heating, cooling and refrigeration, terminology and symbols as used in layouts for the various systems. Introduce the code requirements for installation and safety and inspection problems. Lect. 3 hrs. per wk.

BLDG 123 Principles of Plumbing Inspection (3 cr.)
Fundamentals of sanitary plumbing systems, terminology and symbols as used in layout of the various systems. Introduce the code and inspections problems for commercial, industrial and residential public and private sanitary systems. Lect. 3 hrs. per wk.

BLDG 124 Principles of Public Facilities Inspection (3 cr.)
Prerequisite BLDG 100 or equivalent field experience. Fundamentals of highway, curb and gutter, and storm water drainage systems. Develop an understanding of the materials, and construction methods used in roadway construction. Introduction to the construction methods, inspection and testing techniques of drainage systems to include collection basins, interceptors, flow gradient and piping materials. Lect. 3 hrs. per wk.

BLDG 197 Cooperative Education (1-5 cr.)
(see page 91)

BLDG 234 Materials Take-Off (3 cr.)
Prerequisite ARCH 113 or equivalent. Interpreting and computing data from working drawings and specifications for estimating and fabricating purposes. Includes systems used in computing excavation, concrete, masonry block, brick, wood frame, steel, and various building materials. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

BLDG 235 Cost Estimating (3 cr.)
Prerequisite BLDG 234 or equivalent. Principle and methods of pricing materials, transportation and handling cost, mark-up discount procedures, equipment cost, and wage rates. Preparing estimate forms for various types of estimates as itemized, approximate, lump-sum, unit-cost, and comparative. Lect. 3 hrs. per wk.

BUSINESS MANAGEMENT AND ADMINISTRATION

BUAD 100 Introduction to Business (3 cr.)
The role and function of business enterprise within our economic framework. Includes organization, finance, marketing, personnel administration, production and economics. Designed primarily to help students select their field of business specialization. Lect. 3 hrs. per wk.

BUAD 109 Applied Business Machines (1 cr.)
A self-instructional laboratory course designed to develop a stated proficiency in the operation of standard business machines. Credit will not be granted to anyone having completed MATH 151-152-153 or BUAD 101-102-103. Lab. 2 hrs. per wk.

BUAD 110 Human Relations & Leadership Training (3 cr.)
The task of management involved in getting things done through people; understanding of human motivation and behavior patterns, performance, and analysis of manpower growth in an organization. Lect. 3 hrs. per wk.

BUAD 114 Principles of Supervision I (3 cr.)
Fundamentals of supervision including responsibilities of the supervisor, factors relating to his work and that of his subordinates, aspects of job leadership and effective human relations as related to efficient supervision. Lect. 3 hrs. per wk.

BUAD 116 Personal Finance (3 cr.)
A course designed to build a framework of money management concepts. Content includes establishing values and goals, earning income, managing income, developing consumer buying ability, using credit, understanding savings, insurance, and responsibilities as a consumer. Lect. 3 hrs. per wk.

BUAD 117 Principles of Securities Investment (3 cr.)
Designed to aid the student in developing a broad perspective in the area of stocks and bonds. Mechanics of stock exchanges, types of securities, types of orders, and specific investment objectives. Lect. 3 hrs. per wk.

BUAD 121-122-123 Business Mathematics I, II, III (3 cr.) (3 cr.) (3 cr.)
A sequence of three courses with instruction, review and drill in solving mathematical problems arising from normal business activities, integrating the use of calculating machines as a tool. Theories of mathematics are applied to business activities emphasizing the use of concepts and procedures concerning payroll computations, ratios, discounts, interest, sales and property tax, pricing mark-up and mark-down, and annuities. Lect. 3 hrs.

BUAD 157 Principles of Bank Operations (3 cr.)
The economic importance of banks, the receiving functions, processing of cash items, bookkeeping operations, posting systems, paying teller operations, collection services, legal relationship with depositors, characteristics of negotiable instruments, the savings and time deposit function, management of bank funds, loans and investments, general bank accounting, account analysis and service charges, internal controls, international financial services, trust services, safe deposit services, growth of the American banking system, the Federal Reserve System, government supervision, banking and public service. Lect. 3 hrs. per wk.

BUAD 158 Bank Letters and Reports (3 cr.)
An introduction to the written banking communications; letter forms, fundamental principles underlying modern correspondence, and different types of bank letters. Lect. 3 hrs. per wk.

BUAD 164 Principles of Business Management I (3 cr.)
Prerequisite BUAD 100. Management and management functions; planning, organizing, staffing, directing, and controlling. Management examined as both a science and art with emphasis on both the body of knowledge and the personal abilities to be successful as a manager. Lect. 3 hrs. per wk.

BUAD 165 Principles of Business Management II (3 cr.)
Prerequisite BUAD 164. The application of management principles to realistic management situations. The case method of study in analyzing management problems with emphasis on application to various types of business enterprises. Lect. 3 hrs. per wk.

BUAD 167 Introduction to Labor Relations (3 cr.)
History of the labor movement, survey of labor legislation, labor problems, collective bargaining techniques and trends. Examination of labor relations from social, legal, and economic viewpoints. An analysis of public policy and the current state of the labor movement. Lect. 3 hrs. per wk.

BUAD 174-175 Small Business Management I-II (3 cr.) (3 cr.)
A study of management problems that relate to the small-scale entrepreneur. Includes problems in initiating the business, financial and administrative control, marketing programs and policies, management of business operations, legal and governmental relationship. Also includes case studies involving actual business situations. Lect. 3 hrs. per wk.

BUAD 197 Cooperative Education (1-5 cr.)
(see page 91)

BUAD 241 Business Law I (3 cr.)
An introduction to the field of law, how it developed and how it operates as a method of control; study of the purpose of law in our present-day complex society, the law of contracts, and the law of the agency. Lect. 3 hrs. per wk.

BUAD 242 Business Law II (3 cr.)
Prerequisite BUAD 241. A continuation of Business Law I (BUAD 241). The main topic to be studied is the Uniform Commercial Code as adopted in the various states. Lect. 3 hrs. per wk.

BUAD 243 Business Law III (3 cr.)
Prerequisite BUAD 241-242. Continuation of Business Law I & II (BUAD 241-242). Employment, bailment, partnerships, corporations, property. Lect. 3 hrs. per wk.

BUAD 246 Business Finance (3 cr.)
Problems involved in the acquisition and use of funds necessary to the conduct of business. Sources and instruments of capital and finance, financial organization, and financing of operations and adjustments. Lect. 3 hrs. per wk.

BUAD 247 Bank Investments (3 cr.)
The economic background of investments; federal government, federal agency and municipal securities; general obligation and revenue bonds; markets for Treasury and municipal securities; general nature of bank liquidity; primary and secondary reserves; security prices; yield curves and their uses; safety considerations; tax and related considerations; investment policies. Lect. 3 hrs. per wk.

BUAD 251 Business Statistics I (3 cr.)
Prerequisite MATH 181-182-183, MATH 161-162-163, or MATH 191-192-193. Aspects of statistical methodology such as the collection, organization, presentation and analysis of data; specific concentration with measures of central tendency, dispersion, probability concepts, the normal distribution, sampling distribution, and basic hypothesis testing such as T-test, Z-test, and Chi-Square. Lect. 3 hrs. per wk.

BUAD 252 Business Statistics II (3 cr.)
Prerequisite BUAD 251. Estimation of barametric values, advanced methods and techniques of hypothesis testing and experiment design. Statistical quality control, analysis of variance, linear regression and correlation analysis both simple and multiple measurement of business and economics activity through index numbers, seasonal and secular variation; computer application where practical. Lect. 3 hrs. per wk.

BUAD 253 Business Statistics III (3 cr.)
Prerequisite BUAD 252. The applications of statistical techniques and methodology in business. Includes expedited payoff, game theory, linear programming, transportation models, queuing theory, and demand estimations. Lect. 3 hrs. per wk.

BUAD 254 Applied Business Statistics I (3 cr.)
An introductory course in statistics. Collection, presentation, and analysis of data through ratios, percentages, and averages. Emphasis on the practical application of statistical measures to business situations. Lect. 3 hrs. per wk.

BUAD 255 Applied Business Statistics II (3 cr.)
Prerequisite BUAD 254. A continuation of the application of principles taught in BUAD 254 with emphasis on the graphic presentation of data concerning business activity and some advanced statistical concepts such as probability and sampling. Lect. 3 hrs. per wk.

BUAD 256 Trust Functions and Services (3 cr.)
The services rendered by institutions engaged in the trust business. An introduction to the services and duties involved in trust operations; the distinction between the business and legal aspects of trust functions. Lect. 3 hrs. per wk.

BUAD 258 Credit Administration (3 cr.)
The techniques of installment lending including establishment of credit, obtaining and checking information, servicing the loan, and collecting amounts due. Lect. 3 hrs. per wk.

BUAD 266 Financial Management (3 cr.)
Prerequisite BUAD 246. A basic course in Financial Management that includes the study of Capital Budgeting, Working Capital Management, Cost of Capital, and Long-term Financing. Both Theoretical and Applied Techniques will be studied from the viewpoint of the supplier and user of funds. Lect. 3 hrs. per wk.

BUAD 268 Bank Management (3 cr.)
Presents new trends which have emerged in the philosophy and practice of management. Study and application of the principles provide new and experienced bankers with a working knowledge of bank management. Utilizes the case method of solving management problems. Lect. 3 hrs. per wk.

BUAD 269 Purchasing and Materials Management (3 cr.)
Principles of purchasing and management of inventories including determination of requirements, pricing, source selection, and inventory policy and control. Lect. 3 hrs. per wk.

BUAD 276 Personnel Management (3 cr.)
The problems and issues in the administration of personnel actions. Includes organization and tasks of personnel development, significant personnel considerations and an appraisal of labor in business today. Lect. 3 hrs. per wk.

BUAD 297 Cooperative Education (1-5 cr.)
(see page 91)

BUAD 298 Seminar and Project (1-5 cr.)
(see page 91)

BUAD 299 Supervised Study (1-5 cr.)
(see page 91)

CHEMISTRY

CHEM 06 Chemistry (1-5 cr.)
A developmental course in general chemistry designed to develop a basic understanding of inorganic and organic chemistry. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

CHEM 99 Supervised Study (1-5 cr.)
(see page 91)

CHEM 101-102-103 General Chemistry I-II-III (4 cr.) (4 cr.) (4 cr.)
This is a beginning course for the non-science major, intended for students who will take no further chemistry courses. The experimental and theoretical aspects of the various branches of chemistry are discussed and emphasis is placed on the concepts and ideas of the science. Particular attention is given to introductory organic and biochemistry and the role of chemistry in human affairs is treated. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CHEM 110 Horticultural Chemistry (4 cr.)
Introduction to chemical principles, inorganic and organic structural chemistry and theory and practice of pH. The role of the chemical elements including trace elements in plant growth. Chemicals used such as fungicides, insecticides, fertilizers, and growth regulators. Chemical nomenclature, pH and other general and specific measurements will be practiced. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CHEM 111-112-113 College Chemistry I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite high school chemistry or division approval and pre-test. This is a beginning course primarily for science and engineering majors. The course covers the fundamental laws & theories of chemistry. The student is expected to have a strong background in mathematics. Lect., 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CHEM 114-115 General Inorganic Chemistry I-II (6 cr.) (6 cr.)
Fundamental principles and laws underlying chemical action with special emphasis on the non-metals and their compounds, theories and problems. Laboratory for the first half of the course deals with the non-metallic elements and their compounds. The second half deals with the theories of qualitative analysis. Lect. 4 hrs., Lab. 5 hrs., Total 9 hrs. per wk.

CHEM 151-152 Health Science Chemistry I-II (4 cr.) (4 cr.)
An introduction to chemistry for students in the health sciences. Principles of inorganic, organic and biological chemistry. Lect. 3 hrs., Lab 3 hrs., Total 6 hrs. per wk.

CHEM 198 Seminar and Project (1-5 cr.)
(see page 91)

CHEM 199 Supervised Study (1-5 cr.)
(see page 91)

CHEM 241-242-243 Organic Chemistry I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite CHEM 103 or 113, or equivalent. The fundamentals of organic chemistry. The structure, physical properties, synthesis, and typical reactions of the various series of aliphatic, alicyclic and aromatic compounds with attention to reaction mechanisms. Representative carbon compounds are synthesized with emphasis on basic laboratory techniques. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CHEM 246-247-248 Organic CHEMISTRY I-II-III (5 cr.) (5 cr.) (5 cr.)
Prerequisite high school and freshman college chemistry or equivalent. The fundamentals of organic chemistry; chemical properties, bonding, synthesis, typical reactions, mechanisms and geometry of molecules. The laboratory includes basic techniques, organic synthesis, qualitative analysis and instrumentation. Lect. 3 hrs., Lab. 6 hrs., Total 9 hrs. per wk.

CHEM 260 Instrumental Chemical Analysis (2 cr.)
Prerequisite approval of division. Introduction to the use of special apparatus in chemical analysis. Includes study and use of pH meter, visible and infrared spectrophotometers, gas chromatograph, refractometer, polarimeter, special balances. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

CHEM 299 Supervised Study (1-5 cr.)
(see page 91)

CIVIL ENGINEERING

CIVL 126 Topographic Drafting (3 cr.)
Prerequisites DRFT 120, MATH 118. Development of the techniques used in topographic data computation, to include the drawing and interpretation of symbols used for cultural, hydrographic, soils and relief, and vegetation presentation on maps and charts. Preparation of maps from survey field data and terrestrial and aerial photography. The use of scale rectification and duplication equipment for map and chart preparation. The techniques for use of color in topographic presentation of special conditions. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

CIVL 140 Construction Planning (3 cr.)
Introduction to the equipment used in civil engineering construction and the principles of construction planning. Lect. 3 hrs. per wk.

CIVL 180 Principles of Surveying (4 cr.)
Prerequisite Basic Trigonometry. Introduction to the elements of surveying. Use and care of modern survey equipment and the application of surveying in engineering construction. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CIVL 181-182 Surveying I-II (4 cr.) (4 cr.)
Prerequisite Plane Geometry and Basic Trigonometry. Introduction to surveying, chaining and pacing, direct and profile leveling, measurement of angles, transit-tape traversing, traverse analysis, calculation of areas, adjustment of instruments. Vertical curves, basic and complex horizontal curves, stadia surveying, topographic surveying, preparation and analysis of topographic maps. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CIVL 197 Cooperative Education (1-5 cr.)
(see page 91)

CIVL 198 Seminar and Project (1-5 cr.)
(see page 91)

CIVL 201 Suburban Development I (3 cr.)
Prerequisite CIVL 182. Preparation of preliminary plans, subdivision computations and preparation of record plats for residential areas. Lect. 2 hr., Lab. 2 hrs., Total 4 hrs. per wk.

CIVL 202 Suburban Development II (3 cr.)
Prerequisite CIVL 182. Corequisite CIVL 281. Calculating flow quantities, design of sanitary sewer laterals, street grades and storm sewers as are pertinent to Virginia "3-B" Land Surveyor Registration laws. Preparation of plans and profiles. Lect. 2 hr., Lab. 2 hrs., Total 4 hrs. per wk.

CIVL 203 Suburban Development III (3 cr.)
Prerequisite CIVL 202. Preparation of residential development plans. Flood plain studies. Lect. 2 hr., Lab. 2 hrs., Total 4 hrs. per wk.

CIVL 217 Structural Steel Design (4 cr.)
Prerequisite ENGR 152 or equivalent. Design, investigation, and detailing of basic structural steel members. Lect. 4 hrs. per wk.

CIVL 218 Reinforced Concrete Design (4 cr.)
Prerequisite ENGR 152 or equivalent. Design, investigation and detailing of basic reinforced concrete structural members. Lect. 4 hrs. per wk.

CIVL 227-228 Structural Drafting I-II (2 cr.) (2 cr.)
Fundamentals of structural drafting including the design and fabrication of frame connections, column detailing, welding connections, shop details, and general drafting room procedure. Laboratory includes drawings of timber, steel, and reinforced concrete structures. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

CIVL 246 Soil Mechanics (3 cr.)
Soil in its relationship to engineering construction. Includes soil weight-volume relationships, stress, shear and strain, bearing capacity, sampling procedures, consolidation, settlement, slope stability, with introduction to retaining walls, piles, underground conduits, and earthdams. Lect. 3 hrs. per wek.

CIVL 247 Soil Mechanics Laboratory (1 cr.)
Corequisite CIVL 246 or equivalent. Practical soil sampling, classification by Unified Soil Classification System and by ASTM and AASHO specifications for classifying soils. Laboratory testing of soils to predict engineering performance. Lab. 3 hrs. per wk.

CIVL 254 Civil Materials I (Concrete) (3 cr.)
Prerequisite or Co-requisite CIVL 246 or equivalent. Properties of portland cement concrete, methods of mix design, use and placement of concrete. Lect. 3 hrs. per wk.

CIVL 255 Civil Materials II (Asphalt) (3 cr.)
Prerequisite or Corequisite CIVL 246 or equivalent. Properties of bituminous materials, particularly asphalt cement used in construction, methods of mix design, use and placement of asphalt. Lect. 3 hrs. per wk.

CIVL 257 Concrete Laboratory (1 cr.)
Corequisite CIVL 254. Mixing, curing, testing and quality control of concrete. Lab. 3 hrs. per wk.

CIVL 258 Bituminous Laboratory (1 cr.)
Corequisite CIVL 255. Testing and quality control of bituminous materials. Mixing, testing, and quality control of asphalt cements. Lab. 3 hrs. per wk.

CIVL 276 Traffic and Transportation Technology (4 cr.)
Introduction to the techniques of traffic and transportation surveys. The application of survey data to the planning, design and operation of modern transportation systems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CIVL 281 Advanced Surveying I (4 cr.)
Prerequisite CIVL 182. Layout of curves under complex field conditions, route surveying earthwork, slope states, land surveying, legal aspects of surveying, public land surveys, introduction to the use of the more sophisticated surveying instruments and traversing equipment, precise leveling. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CIVL 282 Advanced Surveying II (4 cr.)
Prerequisite CIVL 281. Plane table surveying, surveying astronomy and celestial observations, triangulation, introduction to photogrammetry, scratch pad computer programming of sterotyped surveying problems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

CIVL 297 Cooperative Education (1-5 cr.)
(see page 91)

CIVL 298 Seminar and Project (1-5 cr.)
(see page 91)

DATA PROCESSING TECHNOLOGY

DAPR 106 Principles of Data Processing (3 cr.)
An introduction to principles, methods, and techniques of data processing, with emphasis on electronic data processing, capabilities and limitations of automatic data processing equipment; computer languages and applications; organization of data processing systems. Lect. 3 hrs. per wk.

DAPR 120 Computers and Their Application (1 cr.)
An introduction to computational systems, analysis techniques, programming languages. The BASIC language will be used in problem solving. Not for Data Processing majors. Lect. 1 hr. per wk.

DAPR 138 Computer System Architecture (3 cr.)
Prerequisite DAPR 106. The study of computer system configuration and its operation under a control program. A detailed study of the components and operation of the CPU and of the interaction between I/O channels and the CPU to achieve overlap between processing and input/output. Lect. 3 hrs. per wk.

DAPR 144 Computer Programming Concepts (Problem-Solving Using Computers) (3 cr.)
Prerequisite DAPR 106 or Division Approval. Provides introduction in fundamentals underlying problem-solving as used in computer program design. Student designs a series of problem solutions using structured techniques and has opportunity to test selected solutions using a high-level programming language. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

DAPR 147 Computer Programming (COBOL) (3 cr.)
Prerequisite DAPR 144 or Division Approval. Experience in using programming techniques with a high level language. Students will be required to program, debug, and test specified business oriented problems using Cobol. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

DAPR 197 Cooperative Education (1-5 cr.)
(see page 91)

DAPR 236 Data Processing Management (3 cr.)
Prerequisite DAPR 106. Survey of ADP management, covering staff and operating functions; ADP planning, analysis of requirements, system selection, contractual consideration, lease/purchase studies, costing of tangible and intangible benefits. Lect. 3 hrs. per wk.

DAPR 256 Computer Programming (Advanced COBOL) (4 cr.)
Prerequisite DAPR 147. Experience in programming in an operating system environment. The characteristics of OS, use of job control language, files, utility programs, and analysis of error messages. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 266 Computer Programming (FORTRAN) (4 cr.)
Prerequisite DAPR 144 or Division Approval. The business applications of Fortran including input/output, floating point arithmetic, loop control, and functions. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 268 Computer Programming (PL/1) (4 cr.)
Prerequisite DAPR 144 or Division Approval. The study and development of programming capability in the IBM System 360 computer language PL/1. Provides student capability to program in this language. Includes relative advantages and disadvantages of this higher level language in installations using medium scale and large scale computer systems and continuation of the study of magnetic tape and random access programming. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 269 Computer Programming (Asembler) (4 cr.)
Prerequisite DAPR 144 or Division Approval. The study and development of a manufacturer's assembly language. The student will write and debug programs in an assembler language, and also be capable of employing this language in a total programming system. The principles of a de-bugging and core-dump reading will be given major emphasis. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 271 Computer Programming (Advanced Assembler) (4 cr.)
Prerequisite DAPR 269. A study of the development of programming capabilities utilizing peripheral devices in addition to the card reader/punch and the printer. Among the peripherals will be direct-access devices and magnetic tape devices. The study of typical applications essential for a business programmer to have a knowledge of the uses, the instructions, and programming techniques required to utilize these devices. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 276 Computer Programming (Advanced FORTRAN) (4 cr.)
Prerequisite DAPR 266. Experience in programming in a disk and/or tape environment. Modularization and overlay structure. Computational error processing and debugging techniques. Data management techniques. Extensive practical problem solution using control software and command language, assembly language subroutines, and utility packages. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 281 Systems Analysis (3 cr.)
Prerequisite DAPR 106. A study of the overall computer based system analysis and design process; information problems of business organization and the inter-relationships of functions; nature of business problem isolation and definition; initial phase of systems analysis and evaluation. Lect. 3 hrs. per wk.

DAPR 286 Computer Program Applications (4 cr.)
Prerequisite DAPR 281. The characteristics and requirements of basic business applications. Design of a computer solution to an application as a case study. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

DAPR 287 Computer Software Systems (3 cr.)
Prerequisite DAPR 147 or Division Approval. A study of components, functions and relationships of computer operating systems and their interactions with user programs. Lect. 3 hrs. per wk.

DAPR 297 Cooperative Education (1-5 cr.)
(see page 91)

DAPR 298 Seminar and Project (1-5 cr.)
(see page 91)

DAPR 299 Supervised Study (1-5 cr.)
(see page 91)

DECORATING

DECO 104-105 Introduction to Interior Decorating I-II (3 cr.) (3 cr.)
Learning the principles and applications of residential interior decorating with emphasis on color theory and space planning as well as presentation methods. Lect. 3 hrs. per wk.

DENTAL

DENT 101-102-103
Dental Science I-II-III (4 cr.) (4 cr.) (4 cr.)
Bacteriology, anatomy and physiology, gross and oral dental anatomy, oral pathology, pharmacology, diet and nutrition, first aid and dental emergencies, and dental health education as related to dental science and the role of the dental assistant. Lect. 2 hrs., Lab. 4 hrs., Total 6 hrs. per wk.

DENT 108 Introduction to Dental Health Care Delivery (3 cr.)
Introduction to dental profession and supporting personnel, history and development of dentistry; the role of the dental auxiliaries in clinical setting and to members of dental laboratory craft and others of the dental health team; dental ethics and jusisprudence; professional and educational opportunities. Lect. 3 hrs. per wk.

DENT 110 Introduction to Dental Materials (4 cr.)
Introduction to the physical and chemical characteristics, uses and manipulation of materials used in dental procedures, clinical and laboratory. Emphasis on the general principles of physical properties and the specifications program of the American Dental Association. Lect. 2 hrs., Lab. 4 hrs., Total 6 hrs. per wk.

DENT 111-112 Clinical Procedures I-II (4 cr.) (4 cr.)
Principles and procedures related to dental instruments and equipment; role of the dental assistant in general and speciality practice. Lect. 2 hrs., Lab. 4 hrs., Total 6 hrs. per wk.

DENT 116 Dental Laboratory Materials (4 cr.)
A study of the chemical composition, physical properties, and uses of metallic and non-metallic dental materials, denture and tooth resins, porcelain, waxes and duplicating materials. The lab exercises are designed to illustrate the properties and uses of the materials studied including their inherent limitations. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

DENT 121-122 Chairside Assisting I-II (4 cr.) (4 cr.)
The proper procedures of reception and preparation of the patient; care of all dental equipment and instruments, charting of teeth, seating of patient, adjustment of dental chair, preparation of trays and instrument stands, layout, and exchange of instruments and materials. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

DENT 123 Chairside Assisting III (6 cr.)
A continuation of DENT 122. The student will be involved in the actual experience of clinical procedures and chairside assisting. Lect. 1 hr., Lab. 15 hrs., Total 16 hrs. per wk.

DENT 126 Oral Anatomy (4 cr.)
The anatomy, structure, morphology, and function of the oral structures, including primary and permanent dentition. Laboratory procedures include identification and reproduction of tooth form, study of skulls, and occlusion of teeth. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

DENT 137 Dental Anatomy and Physiology (4 cr.)
Introduction to human anatomy and physiology. Emphasis on regions of the head and neck and the primary and permanent teeth. Laboratory exercises include: accurate scale drawings of all teeth except the permanent third molars; tooth carvings, coronal and root portions; and the four permanent teeth; maxillary central incisor, maxillary cuspid, maxillary first bicuspid, and mixillary first molar. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

DENT 141 Dental Laboratory Technology I (7 cr.)
Designed to assist students in acquiring the knowledge, understanding, appreciations and attitudes basic to effective construction of complete dentures. Beginning skills in dental laboratory technology methods are developed through planned laboratory exercises and other supervised activities. Lect. 3 hrs., Lab. 12 hrs., Total 15 hrs. per wk.

DENT 142 Dental Laboratory Technology II (7 cr.)
An introduction to the procedures and methods used in the construction of cast removable partial dentures. Emphasis is on making of refractory models, waxing, spruing, burnout casting and the finishing and polishing of the partials. Lect. 3 hrs., Lab. 12 hrs., Total 15 hrs. per wk.

DENT 143 Dental Laboratory Technology III (7 cr.)
The purpose of this course is to develop an understanding of, and some abilities in, the techniques of crown and bridge construction employed by the commercial laboratories in and around the area. Emphasis will also be placed on the construction of inlays and ceramic restorations. Lect. 3 hrs., Lab. 12 hrs., Total 15 hrs. per wk.

DENT 146 Oral Radiographic Techniques (3 cr.)
A study of the nature, physical behavior, biological effects, methods of control, safety precautions, and techniques for exposing, processing and mounting x-rays. Laboratory procedures will include the application of these techniques. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

DENT 176 Advanced Clinical Procedures (3 cr.)
Prerequisites DENT 111-112 and 122. Supervised clinical training in direct patient-care functions beyond the scope of traditional chairside assisting. Practical application of the dental assistant treatment procedures authorized in the Dental Laws of Virginia. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

DENT 190 Coordinated Internship (1-5 cr.)
(see page 91)

DENT 198 Seminar and Project (1-5 cr.)
(see page 91)

DENT 210 Dental Laboratory Materials (4 cr.)
The aim of this course is to acquaint the student with the physical properties of the materials used in the lab and how to best make use of this knowledge in the fabrication of a Dental prosthesis. The student will be instructed in the proper handling of these materials and also the inherent limitations of same. Lect. 3 hrs., Lab. 3 hrs., Total of 6 hrs. per wk.

DENT 244 Dental Laboratory Technology IV (7 cr.)
A practical laboratory course designed to introduce the student to the study of articulation and occlusion and to the basic principles of surveying and designing cast removable partial dentures. Efforts will be made to produce, under the instructor's direction, a variety of restorations, in the specialty chosen by the student, which must closely parallel those cases found in the average dental practice. Lect. 3 hrs., Lab. 12 hrs., Total 15 hrs. per wk.

DENT 245 Dental Laboratory Technology V (8 cr.)
An advanced and intensified study of the specialties covering areas diverging from the normal. The case and problem method is stressed. Lect. 3 hrs., Lab. 15 hrs., Total 18 hrs. per wk.

DENT 246 Dental Laboratory Technology VI (8 cr.)
A continuation of DENT 245 in which the student is placed in an environment closely paralleling conditions found in the field. Emphasis will be placed on the construction of dental restorations requiring the efforts of 2 or more of the specialties. Lect. 1 hr., Lab. 21 hrs., Total 22 hrs. per wk.

DENT 290 Coordinated Practice (1-5 cr.)
(see page 91)

DENT 298 Seminar and Project (1-5 cr.)
(see page 91)

DENT 299 Supervised Study (1-5 cr.)
(see page 91)

DIETETICS

DIET 100 Introduction to Dietetics (1 cr.)
Orientation to the field of dietetics, roles and relationships within the profession, and interrelationships with other health professions. Lect. 1 hr. per wk.

DIET 130 Nutritional Care (3 cr.)
A study of nutrition for both normal and basic modified diets as applied to food service supervision in schools, hospitals, nursing homes, and other health care facilities and institutions. Covers: Nutritional care throughout the life cycle and the application of such diet modification as high/low caloric, bland, controlled fat, low sodium, diabetic, etc. Lect. 3 hrs. per wk.

DIET 134-135 Nutrition I-II (3 cr.) (3 cr.)
Prerequisite HRIM 111-112 or divisional permission. Food sources, digestion, absorption and metabolism of nutrients essential to the health of individuals and groups throughout the life cycle; the application of the principles of good nutrition to various segments of society in the community. Lect. 3 hrs. per wk.

DIET 140 Food Preparation and Management Systems (3 cr.)
A course in quality control applied to food service supervision in schools, hospitals, nursing homes, and other health care facilities. Includes principles of food preparation, recipe standardization, purchasing, equipment, sanitation and safety; concepts of management, cost control, and merchandising. Lect. 3 hrs. per wk.

DIET 190 Coordinated Practice (1-5 cr.)
(see page 91)

DIET 198 Seminar and Project (1-5 cr.)
(see page 91)

DIET 234-235 Therapeutic Nutrition (4 cr.) (3 cr.)
Prerequisite DIET 135, or equivalent, or permission of division. Application of nutrition principles to the dietary treatment of hospital patients. Lect. 3-2 hrs., Lab. 3 hrs., Total 6-5 hrs. per wk.

DIET 290 Coordinated Practice (1-5 cr.)
(see page 91)

DIET 298 Seminar and Project (1-5 cr.)
(see page 91)

DRAFTING

DRFT 111 Technical Drafting I (2 cr.)
Introduction to the techniques and instruments required for success as a draftsman in industry. Use of instruments, lettering, simple descriptive and analytic geometry principles as applied to drafting and freehand sketching, basic principles of orthographic projection in the preparation of simple drawings. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

DRFT 112 Technical Drafting II (2 cr.)
Prerequisite DRFT 111 or equivalent. Sections and conventions, threads and fasteners, pictorial drawings, auxiliaries and revolutions. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

DRFT 113 Technical Drafting III (2 cr.)
Prerequisite DRFT 112 or equivalent. Assembly and detail drawings, working from the simple to the complex. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

DRFT 114 Technical Drafting IV (2 cr.)
Continuation of DRFT 113 with emphasis on production standards. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

DRFT 120 Introduction to Graphic Representation (3 cr.)
The use of instruments, lettering, sketching, and drawing conventions; neat, legible drawings and the value of visual presentations in technology. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

DRFT 144 Automotive Drawing Interpretation I (2 cr.)
Reading and interpretation of automotive shop drawings, including assembly and exploded drawings of automotive assemblies. Lect. 2 hrs. per wk.

DRFT 154-155 Advanced Technical Illustration I-II (3 cr.) (3 cr.)
Prerequisite DRFT 112 or divisional approval. The development of axonometric (pictorial) projections, perspectives, exploded illustrations, industrial shading, inking techniques, and instrument lettering. DRFT 155 will include patent illustrating, photo high-lighting, retouching, schematics and diagrams presentation drafting, pressure tape drafting, and continuation of inking techniques and instrument lettering. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

DRFT 177 Architectural Blueprint Reading (3 cr.)
Emphasis on reading, understanding and interpreting standard types of architectural drawings including plans, elevations, sections and details. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

DRFT 197 Cooperative Education (1-5 cr.)
(see page 91)

DRFT 198 Seminar and Project (1-5 cr.)
(see page 91)

DRFT 211 Advanced Technical Drafting V (3 cr.)
Prerequisite DRFT 113. Use of drafting machines with emphasis on the knowledge and skill required for typical industrial drawing. Electrical and electronic symbols and drawings, piping, complicated gearing drawings, sections, and layout; skill in lettering of all types. Lect. 1 hr., Lab 6 hrs., Total 7 hrs. per wk.

DRFT 212 Advanced Technical Drafting VI (3 cr.)
Prerequisite DRFT 211. Electronic and electromechanical drawings, sheet metal fabrication, radii, fillets, and tolerances; use of ink in lettering and ruling. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

DRFT 213 Advanced Technical Drafting VII (3 cr.)
Prerequisite DRFT 212. Design drafting in all aspects as a means of communication. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

DRFT 256 Electronics Drafting (2 cr.)
Fundamental principles, practices and methods of presenting electromechanical information through the graphic language. Principles of projection, fastening, materials and finishes, chassis design and fabrication, electronic symbology, diagrammatic drawings, printed circuit drawings and checking of electronic drawings. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

DRFT 297 Cooperative Education (1-5 cr.)
(see page 91)

DRFT 298 Seminar and Project (1-5 cr.)
(see page 91)

ECONOMICS

ECON 160 American Economics (3 cr.)
A survey of the history, principles, and policies of the American economic system. Some comparison with alternative economic systems. Lect. 3 hrs. per wk.

ECON 198 Seminar and Project (1-5 cr.)
Prerequisite division permission (see page 91)

ECON 211-212-213 Principles of Economics I-II-III (3 cr.) (3 cr.) (3 cr.)
The principles of economics and the bearing of these principles on present American conditions, structural and functional aspects of the economy. Analysis, problems and issues relating to organization of business, labor and government institutions and economic stability and growth. Measurements of economic activity. Private enterprise, economic growth and stabilization policies, monetary and fiscal policy. International economic relationships, alternative economic systems. Lect. 3 hrs. per wk.

ECON 214-215 Principles of Economics I-II (5 cr.) (4 cr.)
The principles of economics and the bearings of these principles on present American conditions; structural and functional aspects of the economy. Analysis, problems and issues relating to the organization of business, labor, and government institutions and their economic stability and growth. Measurements of economic activity. Private enterprise, economic growth and stabilization policies, monetary and fiscal policy. International economic relationships, alternative economic systems. Lect. 5-4 hrs. per wk.

ECON 241 Money and Banking I (3 cr.)
A review of the history of American banking institutions; banking theories, principles and practices; emphasis is placed on relationship of finances to business structure, operation and organization; present-day financial structures, agents, problems and institutions are examined in depth. Lect. 3 hrs. per wk.

ECON 298 Seminar and Project (1-5 cr.)
(see page 91)

ECON 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

EDUCATION

EDUC 100 Orientation to Childhood Development and Education (2 cr.)
The course is designed to provide an entering overview of the basic theories, activities, responsibilities, and practice involved in Educational Services curricula at the community college level. Topics include program expectations, field placement responsibilities and guidelines, and career opportunities. Students will recognize and understand expectations and responsibilities of early childhood, educational associate, and special education fields. Lect. 2 hrs. per wk.

EDUC 106 Language Arts for Young Children (3 cr.)
The techniques and methods for encouraging the development of language skills in the young child. Improvement of vocabulary, speech and discussion stimulation will be emphasized. Surveys the best prose and verse, examines techniques of story telling, and stresses use of audio-visual materials. Lect. 3 hrs. per wk.

EDUC 111-112-113 Educational Techniques in Child Study I-II-III (3 cr.) (3 cr.) (3 cr.)
Methods, skills, and techniques of gathering observational data on young children. Running records, timed observations, behavior check-lists, sociograms and other techniques of observing children will be considered. Emphasis on understanding developmental patterns in the physical, social, emotional, and intellectual areas of a child's development through analysis of the records. Lect. 3 hrs. per wk.

EDUC 116 Library Utilization for Instructional Aides (3 cr.)
Familiarization and utilization of library materials for preparation of instructional materials by instructional aides. Current literature and its application to the classroom. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 117 Introduction to Reading Methods (3 cr.)
Introduction to the current practices of teaching reading in the elementary school. Familiarization with materials currently in use, observation of various reading techniques and trends in the classroom. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 121-122-123 Childhood Education I-II-III (3 cr.) (3 cr.) (3 cr.)
Theory and concepts of early childhood education (121), elementary age education (122), and adolescent education (123). Characteristics for each age group covering the following categories: general relations with adults; intellectual skills; physical growth; and relations with children in their own peer group. Lect. 3 hrs. per wk.

EDUC 126 Learning Disabilities (3 cr.)
Designed for early childhood and primary grades personnel and primarily concerned with identification, assessment, and amelioration of specific learning problems from a preventive rather than remedial standpoint. Includes a survey of both indepth and informal assessment procedures and devices, with application to "matching" differential diagnosis with specific instructional materials and strategies. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 127 Problem Solving in Early Childhood Education (3 cr.)
Educational techniques to help the instructional aide to deal with emotional problems in the normal child in the classroom situation. Lect. 3 hrs. per wk.

EDUC 128 Perceptual Motor Development of the Preschooler (2 cr.)
Content underlines the importance and implications of selected activities influencing the development of perceptual motor skills during the youngster's early years. Perceptual motor theory and practical application of theory in utilizing readily obtainable resources which will encourage the child's development. Lect. 2 hrs. per wk.

EDUC 130 Instructional Equipment Laboratory (1 cr.)
The operation and use of standard instructional equipment with emphasis upon audiovisual equipment such as movie projectors, tape recorders, slide projectors, and tutorial machines; general procedures for obtaining films and other special learning materials. Lab. 3 hrs. per wk.

EDUC 136 Materials and Equipment for Instructional Aides (3 cr.)
The preparation of view graphs, the construction of graphic charts, and other aides; how to select slides and develop material for classroom presentation. The operation, care and use of instructional equipment, including audio-visual equipment most used in the classroom. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 137 Creative Activities for Children (3 cr.)
This course is designed to prepare individuals for working with young children in art and other creative activities. Emphasizes coverage of suitable materials and the laboratory application. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 140 Modern Mathematics Concepts (3 cr.)
The techniques and materials used to develop mathematical patterns and concepts in pre-school and primary modern mathematics programs. Instructional aides will learn to prepare, collect and work with materials used to develop mathematical concepts in children. Lect. 3 hrs. per wk.

EDUC 150 Modern Science Concepts (3 cr.)
The content and methods of teaching science in the elementary school, beginning with the everyday environment of the child and leading to basic generalizations in science. Lect. 3 hrs. per wk.

EDUC 161-162 Educational Techniques I-II (3 cr.) (3 cr.)
Provides instructional assistants who are not already employed in a school situation with the supervised practical experience necessary for effective assistance to the classroom teacher. Supervised experience with children at selected schools, child care centers, and other institutions of learning to give prospective instructional assistants opportunities to observe, participate in & evaluate the interaction of teachers, instructional assistants and children. Lectures will include preparation for practicum experiences, and the review and evaluation of those experiences. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

EDUC 186 Child Study (3 cr.)
Prerequisite PSYC 130. An advanced course in child development including methods of child study, theories of child development, implications for direct work with children, and a case study of an individual child. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

EDUC 190 Coordinated Internship (1-5 cr.)
(see page 91)

EDUC 197 Cooperative Education (1-5 cr.)
(see page 91)

EDUC 198 Seminar and Project (1-5 cr.)
(see page 91)

EDUC 210 Introduction to Special Education (3 cr.)
Prerequisite PSYC 130 and EDUC 121. A brief overview of the history of special education. The role and responsibilities of the paraprofessional in special education. Emphasis will be on working with educationally and neurologically handicapped. Lect. 3 hrs. per wk.

EDUC 217 Models of Child Development Programs (3 cr.)
Study and discussion of purposes, licensing and staff requirements. Various models and theories of child care will be emphasized. Field trips to various child care centers. Lect. 3 hrs. per wk.

EDUC 236 Child Development Programs Planning and Management (3 cr.)
Prerequisites PSYC 130 and EDUC 121. An intensive course in program planning, methods and materials for activities with young children including theoretical bases. An integral part of the course will be emphasis upon professionalism, personality, and interpersonal skills in the teacher-paraprofessional roles. Positive guidance techniques and classroom management and its relation to healthy personality development. Lect. 3 hrs. per wk.

EDUC 246 Educational Law (3 cr.)
The application of rules of law to the operation of the public schools in Virginia. Legal aspects of the principal instruments of school activities, rights and liabilities of school employees, legal aspects of negotiable instruments and securities. Lect. 3 hrs. per wk.

EDUC 267 Diagnostic/Prescriptive Teaching (3 cr.)
Prerequisites PSYC 231, EDUC 121, and EDUC 126 or 128. Survey of the rationale, operational models, techniques, and problems relevant to implementation of Diagnostic/Prescriptive Teacher programs. Students will gain skills in implementing diagnostic prescriptions for learning disabled children. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

EDUC 297 Cooperative Education (1-5 cr.)
(see page 91)

EDUC 298 Seminar and Project (1-5 cr.)
(see page 91)

ELECTRONIC TECHNOLOGY

ELEC 114 Fundamentals of Direct Current (4 cr.)
MATH 121 must have been taken previously or must be taken concurrently. A study of current flow and direct current circuits. The course presents work with magnetic circuits. This course utilizes mathematical tools as they are developed in the mathematics course. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 115 Fundamentals of Alternating Current (4 cr.)
Prerequisite ELEC 114. MATH 122 must have been taken previously or must be taken concurrently. The study of time varying currents: The student will use complex numbers and vector concepts in dealing with AC impedances. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 116 Introduction to Circuit Analysis (4 cr.)
Prerequisite ELEC 115. A course emphasizing AC circuit theory and both AC and DC network theorem and provides a continuation of the background information needed to analyze networks with both active and passive elements present. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 120 Tubes and Transistors (4 cr.)
Pre or corequisite ELEC 114. A course concerned with how electronic devices work and the characteristics of these devices. Both tube and solid state device characteristics are covered. This course utilizes the mathematical tools as they become available and the ideas of electronic flow and circuit analysis as they are developed in the fundamentals of electricity course. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 125 Introduction to Electronics (5 cr.)
Pre or corequisite ELEC 115. Prerequisite ELEC 120. The theory, properties, and application of vacuum tube and solid state devices, including power supplies. Lect. 4 hrs., Lab. 3 hrs., Total 7 hrs. per wk.

ELEC 126 Amplifiers (5 cr.)
Prerequisite ELEC 125. Amplifiers both transistor and tube types with emphasis on methods of analysis and design procedures. Lect. 4 hrs., Lab. 3 hrs., Total 7 hrs. per wk.

ELEC 197 Cooperative Education (1-5 cr.)
(see page 91)

ELEC 217-218 Circuits I-II (2 cr.) (3 cr.)
Corequisite MATH 242. Fundamentals of circuit theory. Elements of network topology, mesh currents and mode voltages. Methods used for solving one-port and two-port networks. Lect. 2-3 hrs. per wk.

ELEC 227 Pulse and Switching Circuits (3 cr.)
Prerequisite ELEC 116 and ELEC 126. Linear and non-linear wave shaping providing base for further study in the areas of computers and automatic controls. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ELEC 241 Communications I (4 cr.)
Prerequisite ELEC 116 and ELEC 126. A study of modulation and power in modulated waves; sinusoidal oscillations and oscillators, RF amplifiers and detectors, and AM receivers. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 242 Communications II (4 cr.)
Prerequisite ELEC 241. A study of transmitters and receivers. Topics included are FM receivers, RF power amplification, AM, SSB and FM transmitters, and an introduction to transmission lines and antennas. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 243 Communications III (4 cr.)
Prerequisite ELEC 242. A study of Microwave systems. Topics included are microwave tubes, waveguides, antennas and measurements at microwave frequencies. Also, an introduction to radar and television systems is presented. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 249 Television Electronics (3 cr.)
Prerequisites ELEC 242 and ELEC 227. A lecture-demonstration course dealing with the special devices and techniques associated with monochrome and color, broadcast and industrial television transmission and reception. Specifically included are the standards of American television electronics as set down by the National Association of Broadcasters (NAB). Cameras and television receivers are given special emphasis. Lect., 3 hrs. per wk.

ELEC 250 Introduction to Computers (4 cr.)
Prerequisite ELEC 227. A general introduction to concepts and basic features of electronic computers. Topics include: fundamentals of internal operations; number systems, digital circuits, Boolean algebra, basic logical design techniques, analysis of input-output devices, control and arithmetic units, memory units and limited programming. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 260 Control Circuits (4 cr.)
Prerequisite ELEC 227. The principles and applications of electrical controllers are covered in this course, which serves as an introduction to automation. Devices for differentiation, integration and proportioning are studied in detail. Hardware and circuitry for AC and DC industrial control devices, including contractors, starters, speed controllers, time delays, limit switches and pilot devices. Application in the control of industrial equipment-motors, servo units and motor-driven actuators. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 276 Instruments and Measurements (4 cr.)
Co or prerequisite ELEC 227 and ELEC 241. A study of basic circuits in electronic measurements and application of these circuits in test instruments such as oscilloscopes, vacuum tube voltmeters and bridges. Further study concerned with the accuracy of measurements, how instruments work, proper use of instruments, and calibration technique. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

ELEC 287 Advanced Circuits and New Devices (2 cr.)
Prerequisite division approval. This is a unique course, since it depends so heavily on the judgment of the teaching staff. It is composed of lectures and demonstrations concerned with the latest developments in electronics. Lect. 2 hrs. per wk.

ELEC 297 Cooperative Education (1-5 cr.)
(see page 91)

ELEC 298 Seminar and Project (1-5 cr.)
Prerequisite division approval (see page 91)

EMERGENCY MEDICAL SERVICES TECHNOLOGY

EMDT 111 Emergency Medical Services Tech I (6 cr.)
Study of the mechanics of respiration and circulation, signs and significance of various wound types, elements and functions of the nervous system, and parts and functions of the musculo-skeletal system, anatomy and physiology as appropriate as well as practical application of this knowledge in emergency procedures used in treating bleeding, shock and airway injuries. Lect. 4 hrs., Lab. 6 hrs., Total 10 hrs. per wk.

EMDT 112 Emergency medical Services Tech II (6 cr.)
Study of the body functions, signs and symptoms of poison victims, treatment of severe bites and stings, care of diabetic patients; problems related to childbirth and practical application of this knowledge in treating these types of injuries as well as a continuation of appropriate anatomy and physiology. Lect. 4 hrs., Lab. 6 hrs., Total 10 hrs. per wk.

EMDT 113 Emergency Medical Services Tech III (6 cr.)
Study of the principles and considerations involved in extricating injured and uninjured persons from vehicle accidents; as well as the laws relating to operating emergency vehicles and responsibilities of the "EMT" in caring for victims and practical application of this knowledge in emergency procedures used in various situations. Lect. 4 hrs., Lab. 6 hrs., Total 10 hrs. per wk.

EMDT 090 Coordinated Internship (1-5 cr.)
(see page 91)

EMDT 190 Coordinated Practice (1-5 cr.)
(see page 91)

ENGINEERING

ENGR 10 Introduction to Technical Engineering (2 cr.)
An introductory course to the work of the Engineering Technician. Simple engineering problems; slide rule instruction and applications. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

ENGR 53 Elements of Statics and Strength of Materials (3 cr.)
Prerequisite ENGR 10 or MATH 11. An introductory course for technicians of the basic principles of Statics (forces, equilibrium, moments, etc.) and Strength of materials (centroids, moments of inertia, stress and deformation, shear and moment diagrams, etc.) — Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENGR 100 Introduction to Engineering Technology (2 cr.)
Professional fields of engineering; the work of the engineer, requirements of training and character, professional ethics, the division of industrial practice and competition. Pure and simple problems from the various schools of engineering are used with slide-rule applications. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

ENGR 101 Introduction to Engineering (2 cr.)
Professional fields of engineering; work of the engineer, requirements and character, historical aspects, and typical problems from the various fields of engineering with electronic digital calculator applications. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs.

ENGR 102 Introduction to Engineering Methods (2 cr.)
Prerequisite ENGR 101, Corequisite MATH 141 or equivalent. An introduction to electronic computation and programming of the digital computer using FORTRAN language for science or engineering majors. Lect. 1 hrs., Lab. 2 hrs., Total 3 hrs. per wk.

ENGR 103 Conceptual Design and Analysis (2 cr.)
Prerequisite ENGR 102 and ENGR 121 or equivalent. Engineering fundamentals and concepts in the problem solving process; use of graphical mathematics; case studies; team approach to engineering design problems with team reports and presentations. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

ENGR 121 Engineering Graphics I (2 cr.)
Drawing and theories of projection. Multiview drawings, pictorial drawings and sketching, geometrical construction, sectioning, lettering, dimensioning, auxiliary views, revolutions, assembly drawings. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

ENGR 122 Engineering Graphics II (2 cr.)
Prerequisite ENGR 121. Graphical methods used in engineering design, layout and calculation. Properties and types of graphs for engineering and scientific purposes. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

ENGR 123 Engineering Graphics III (2 cr.)
Prerequisite ENGR 121 or equivalent. A study of the analysis and graphic presentation of the space relationship of fundamental geometric elements: point, line, plane, curved surfaces, development and vectors. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

ENGR 151 Mechanic 1 (Statics) (4 cr.)
Corequisite MATH 122 or MATH 112. Principles and applications of free body diagrams for force systems, shear and moment diagrams, deflection of beams by numerical integration, and determination of section properties. Lect. 4 hrs. per wk.

ENGR 152 Mechanics II (Strength of Materials) (3 cr.)
Prerequisite ENGR 151. Strength of material concepts. Stress and strain analysis, both elastic and plastic, with emphasis on elastic analysis of axially loaded members, connectors, beams, and columns. Lect. 3 hrs. per wk.

ENGR 153 Mechanics III (3 cr.)
Prerequisite ENGR 151 or equivalent. The study of rigid body mechanics, including kinetics, kinematics, and advanced strength of materials. Lect. 3 hrs. per wk.

ENGR 154 Mechanics Laboratory (1 cr.)
Prerequisite or corequisite ENGR 152. Tension, compression, torsion, bending, fatigue, and hardness of materials. Static and dynamic stresses and strains, stress concentration factors, and statistical evaluation of data. Experiments and/or demonstrations. Lab. 3 hrs. per wk.

ENGR 160 Applied Fluid Mechanics (3 cr.)
Prerequisite MATH 122 or equivalent. Properties of fluids and fluid flow, study of fluid statics and flow measuring devices and the use of Bernoulli's equation in flow of real fluids. Lect. 3 hrs. per wk.

ENGR 197 Cooperative Education (1-5 cr.)
(see page 91)

ENGR 198 Seminar and Project (1-5 cr.)
(see page 91)

ENGR 206 Engineering Economy (3 cr.)
Economic decision process in the engineering design environment. Investment, financing, depreciation, manufacturing costs, economic selection replacement. Lect. 3 hrs. per wk.

ENGR 251 Engineering Mechanics I (Statics) (4 cr.)
Corequisite MATH 241. Vector treatment of concepts of force, mass, space, & time, gravitational systems of measurements, forces, moments & vector quantities; analysis of discrete & distributed force systems & their application to bodies in external equilibrium including cranes, trusses; principles of dry friction, centroids & fluid statics. Lect. 4 hrs. per wk.

ENGR 252 Engineering Mechanics II (Mechanics of Solids) (4 cr.)
Prerequisite ENGR 251, Pre or Corequisite MATH 242. Introductory mechanics of continuous media; concepts of stress & deformation due to longitudinal loads, torsion and bending, plane stress. Lect. 4 hrs. per wk.

ENGR 253 Engineering Mechanics III (Dynamics) (4 cr.)
Prerequisite ENGR 251. Pre or corequisite MATH 242. Vector treatment of coplanar and three-dimensional kinematics and kinetics of particles and rigid bodies including relative motion, mass moments of inertia. Newton's Laws, work and energy, impulse and momentum, vibration, and balancing. Lect. 4 hrs. per wk.

ENGR 297 Cooperative Education (1-5 cr.)
(see page 91)

ENGR 298 Seminar and Project (1-5 cr.)
(see page 91)

ENGR 299 Supervised Study (1-5 cr.)
(see page 91)

ENGLISH

ENGL 01 Verbal Studies Laboratory (1-5 cr.)
A developmental course in composition designed for students who need help in all areas of writing to bring their proficiency to the level necessary for entrance into their respective curricula. Emphasis on individualized instruction. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

ENGL 02 Developmental Spelling Laboratory (1-5 cr.)
A developmental course designed to help students overcome spelling difficulties through the study of the sound-letter relationships in the English language and through familiarization with common spelling problems. Emphasis will be placed on the specific needs of the individual. Variable hrs.

ENGL 05 English as a Second Language (1-5 cr.)
A developmental course in the English language for persons whose native language is not standard English. Emphasis on production of English phonemes, intonation patterns, structural patterns, grammar, vocabulary, and idioms. Students are expected to spend a minimum of 3 hours weekly in the language laboratory. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

ENGL 07 Verbal Expression (1-5 cr.)
A developmental course designed to improve the student's written and spoken communication. Review of effective writing practices. Emphasis on practical application; the writing of instructions, explanations, business letters, job applications, summary paragraphs, methods of informative writing; outlining, reading for understanding, and vocabulary building; unit, development and organization in writing. Practice in listening and speaking, giving and following instructions, short informative talks. Intensified practice in varied speaking and writing problems. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

ENGL 08 Reading Improvement (1-5 cr.)
A developmental course using modern techniques, equipment, and materials to increase the student's comprehension, skill, and speed in reading. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

ENGL 100 Occupational English (3 cr.)
Develops basic, practical English skills in oral and written communication. The emphases are basic organization principles, approaches to media analysis, job-related vocabulary building, listening, writing, and speaking skills. Practical skills such as handling customer complaints, writing various types of letters, preparation for a job interview are included. This course is intended for certificate students. Lect. 3 hrs. per wk.

ENGL 101-102-103
Communication Skills I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite satisfactory score on appropriate English proficiency examination. Designed to teach the student to use the English language correctly and effectively and to develop skill in the preparation of reports, articles, essays, and correspondence related to technical fields. Attention to sentence structure and paragraph development to express thoughts in lucid, coherent, well-developed form. Reading selections provide material for discussion and supply topics for frequent writing assignments. Lect. 3 hrs. per wk.

NOTE: The student in a program that requires ENGL 101-102 and a third quarter of English or Speech should consult with his major advisor to determine which English or Speech course would be the most appropriate for his particular program. Please note that the course SPDR 136 is the equivalent of the course previously known as ENGL 136 and that it has no prerequisite; thus it can be taken at any time: 101-102-136, 101-136-102, or 136-101-102.

ENGL 110 English Grammar:
Its Logic and Function (3 cr.)
The traditional grammar rules of the English language; their logic, system, and development. Current adaptations of conventional rules will be examined in order to provide the students with an opportunity to understand the function of grammar as applied to written communication. Lect. 3 hrs. per wk.

ENGL 111-112-113 English
Composition I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite satisfactory score on appropriate English proficiency examinations and 4 units of high school English or equivalent. Expository and argumentative writing, ranging from single paragraphs to essays of some length and complexity. Study of logical, rhetorical, and linguistic structures; the methods and conventions of preparing research papers; and the practical criticism of literary types. These courses must be taken in sequence. Lect. 3 hrs. per wk.

ENGL 114-115 English
Composition I-II (5 cr.) (4 cr.)
Prerequisite satisfactory score on appropriate English proficiency examinations and 4 units of high school English or equivalent. Expository and argumentative writing, ranging from single paragraphs to essays of some length and complexity. Study of logical, rhetorical, and linguistic structures; the methods and conventions of preparing research papers; and the practical criticism of literary types. Lect. 5-4 hrs. per wk.

ENGL 118 Advanced Reading
and Study Development (3 cr.)
A multi-level reading course with emphasis on structural analysis, critical reading, and study techniques for the development of individual skill; laboratory provides enrichment and application of techniques. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENGL 119 Critical Reading
and Study Skills (3 cr.)
Development of skills necessary to succeed in college work, including, according to student needs, time management; effective listening; note taking from books, in books, and from lectures; previewing a textbook; critical textbook reading; applied study; use of the library; effective memory techniques; preparing outlines and summaries; and preparing for and taking examinations. Lect. 3 hrs. per wk.

ENGL 126 Introduction to Journalism (3 cr.)
Prerequisite freshman English or divisional approval. This course is designed to acquaint the student with the functions of the news media and the forces which shape them. It provides beginning instruction and practice in gathering, writing, and evaluating the news. It offers practice in copy preparation and production. Lect. 3 hrs. per wk.

ENGL 127 History of Journalism (3 cr.)
Prerequisite freshman English or divisional approval. This course is a survey of American Journalism from the colonial period to the present with emphasis on freedom of the press, propaganda and censorship. Lect. 3 hrs. per wk.

ENGL 128 Survey of Mass Media (3 cr.)
Prerequisite freshman English or divisional approval. This is a survey of radio, television, newspapers, magazines, books and motion pictures. Emphasis is placed on the nature of change in, and the social implications of communications media today. Lect. 3 hrs. per wk.

ENGL 137 Technical Writing (3 cr.)
Prerequisite ENGL 102 or departmental approval. Designed to develop writing proficiency in technical fields. Emphasis on collecting, organizing, and presenting materials applicable to various specialized areas. Lect. 3 hrs. per wk.

ENGL 146 Literature for Children (3 cr.)
Surveys the history of children's literature, recognizes learning theory and developmental factors influencing reading and reading interests, and utilizes bibliographic tools in selecting books and materials for children. Emphasizes extensive reading and examination of books for recreational interests and educational needs of children. Lect. 3 hrs. per wk.

ENGL 157 American Folklore (3 cr.)
Folklore of the various regions of America. Includes folk speech, proverbs, songs, beliefs and customs of various groups including American Indians, Louisians, French, Spanish American, Pennsylvania Dutch, Appalachians and others. Lect. 3 hrs. per wk.

ENGL 166 College Reading (3 cr.)
A course designed to facilitate college reading improvement in a variety of areas including rate of comprehension, vocabulary, study skills, and help in alleviating special problems in reading. Using modern equipment, materials, and techniques, the student will pursue a course of study set up between him and the instructor based on his needs, abilities, and goals as ascertained by test results and diagnostic interviews. Lect. 3 hrs. per wk.

ENGL 180 Fundamentals of Business English (3 cr.)
Prerequisite ENGL 102. An intensive study of the qualities and techniques required in the preparation of business correspondence, reports, articles, and memoranda. A practical course in the reading and writing of business-related materials with emphasis on comprehension, analysis, and organization of ideas in a logical pattern. Class 3 hrs. per wk.

ENGL 191-192-193 Workshop in Reporting and Writing (3 cr.) (3 cr.) (3 cr.)
Designed to provide instruction and practical experience in gathering, evaluating and writing news and feature stories for the college paper. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

ENGL 198 Seminar and Project (1-5 cr.)
(see page 91)

ENGL 199 Supervised Study (1-5 cr.)
(see page 91)

ENGL 221 Journalism-News Writing (3 cr.)
Prerequisite ENGL 126 or divisional approval. Intensive practice in reporting and news writing for local newspapers or the college newspaper under supervision of the journalism faculty and other professional journalists. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENGL 222 Journalism-Feature Writing (3 cr.)
Prerequisite ENGL 126 or divisional approval. Intensive practice in writing feature articles for newspapers and magazines under the supervision of professional journalists and the journalism faculty. Articles will be submitted for publication. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENGL 223 Journalism-Editing (3 cr.)
Prerequisite 9 hours of journalism and divisional approval. Qualified students will receive practical experience working with professional journalists in the preparation and production of copy. Emphasis on selective judgment, editing as a creative process, managerial functions of the editor. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENGL 227 Investigative Reporting (3 cr.)
Prerequisite 9 hours of journalism and division approval. Qualified students will receive intensive practice in doing in-depth investigations of political, social, consumer and environmental problems, and in writing lengthy news stories based on their research. Lectures will familiarize the students with such areas of concern and will discuss techniques of exploring governmental agencies and other institutions for suitable topics of investigation. Lect. 3 hrs. per wk.

ENGL 228 Creative Writing (3 cr.)
Prerequisites ENGL 111, 112, 113 or divisional permission. Designed to introduce the student to the fundamentals of writing creatively, involving primarily the use of the imagination. Samples of creative writings will be studied to observe the methods employed in writing poetry, essays, and short stories. Lect. 3 hrs. per wk.

ENGL 229 Creative Short Story Writing (3 cr.)
Designed to involve the student in the creative and imaginative writing of short stories as a form of literary expression. Lect. 3 hrs. per wk.

ENGL 230 Creative Poetry Writing (3 cr.)
Designed to involve the student in the creative and imaginative writing of poetry as a form of literary expression. Lect. 3 hrs. per wk.

ENGL 240 Backgrounds to Modern Drama (3 cr.)
A study of significant plans by authors of the 17th through 20th centuries, emphasizing dramatic techniques, influences on contemporary drama, and the historical and social backgrounds of the works. The intent of the course is to help introduce the beginning student to the drama and provide further reading for the more experienced student. Lect. 3 hrs. per wk.

ENGL 244 Literature of Science Fiction (3 cr.)
The study of literary and social aspects of science fiction. Emphasis will be ideas, themes, characteristics and trends as they have developed from the 1930's to the present. Lect. 3 hrs. per wk.

ENGL 246 The Modern Novel (3 cr.)
Prerequisite freshman English or divisional approval. A study of the modern novel. Emphasis on appreciation and interpretation of selected novels. Lect. 3 hrs. per wk.

ENGL 247 The Modern Drama (3 cr.)
Prerequisite freshman English or divisional approval. A study of the modern drama. Emphasis on the understanding and enjoyment of dramatic literature. Lect. 3 hrs. per wk.

ENGL 248 The Modern Short Story (3 cr.)
Prerequisite freshman English or divisional approval. A study of the short story as a literary form. Emphasis on appreciation and interpretation of selected stories. Lect. 3 hrs. per wk.

ENGL 249 Modern Poetry (3 cr.)
Prerequisite freshman English or divisional approval. A study of modern poetry. Emphasis on appreciation and interpretation of selected poems. Lect. 3 hrs. per wk.

ENGL 250 Major American Writers (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study of selected American writers representative of various periods. Students may not receive credit for both Survey of American Literature (ENGL 251-252-253) and ENGL 250 nor any combination of ENGL 250 and ENGL 251-252-253. Lect. 5 hrs. per wk.

ENGL 251-252-253 Survey of American Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or divisional approval. American Literature from Colonial times to the present. Emphasis on the ideas, themes, and characteristics of our national literature. Lect. 3 hrs. per wk.

ENGL 259 Afro-American Literature (3 cr.)
An examination of selected works by Black writers in America from early times to the present with emphasis upon the twentieth century. Primary concern will be the tracing in these works of major themes which reveal the Black man's vision of America and his place in it. Lect. 3 hrs. per wk.

ENGL 260 Major English Writers (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study of selected English writers representative of various periods. Students may not receive credit for both Survey of English Literature (ENGL 261-262-263) and ENGL 260 nor any combination of ENGL 260 and ENGL 261-262-263. Lect. 5 hrs. per wk.

ENGL 261-262-263 Survey of English Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or divisional approval. A survey of major English writings from early times to the modern period. Emphasis on the ideas, themes, and characteristics of English literature. Lect. 3 hrs. per wk.

ENGL 270 Major Writers in World Literature (5 cr.)
Prerequisite ENGL 113 or divisional approval. A study in depth of writers of various cultures. Students may not receive credit for both Survey of World Literature (ENGL 271-272-273) and ENGL 270 nor any combination of ENGL 270 and ENGL 271-272-273. Lect. 5 hrs. per wk.

ENGL 271-272-273 Survey of World Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite ENGL 113 or equivalent. A course designed to familiarize the student with master works of world literature. Analytical reading and critical writing toward understanding of the periods, the writers, the literary works. Lect. 3 hrs. per wk.

ENGL 291-292-293 Editing and Makeup I-II-III (4 cr.) (4 cr.) (4 cr.)
Designed to provide instruction and practical experience in all production aspects of the college paper. Principles of editing, page design, photo display, handling advertising copy and paste-up will be emphasized, as well as the functions and responsibilities of page editors. Lect. 2 hrs., Lab 4 hrs., Total 6 hrs. per wk.

ENGL 298 Seminar and Project (1-5 cr.)
(see page 91)

ENGL 299 Supervised Study (1-5 cr.)
(see page 91)

ENVIRONMENTAL SCIENCE

ENVR 60 Basic Concepts for Water and Wastewater Treatment (3 cr.)
Scientific and institutional principles necessary to operate water and wastewater treatment facilities. Lect. 3 hrs. per wk.

ENVR 106 Introduction to Sanitation (3 cr.)
A study of methods of disease transmission, hygienic excrete disposal, municipal and industrial wastewater removal and treatment, characteristics of water, water treatment, protection of ground water, insect and rodent control, solid waste collection and disposal, milk and food sanitation, swimming pool and industrial hygiene. Lect. 3 hrs. per wk.

ENVR 120 Introduction to Air Pollution (3 cr.)
Air pollution in relation to public health; study of the scientific, engineering, and legal aspects of pollution; sources and classifications of pollutants, pollution meteorology; sampling and measuring techniques; remedies and controls currently available. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

ENVR 166 Wastewater Treatment Plant Operation (5 cr.)
Environmental principles and practices and desired function and operation of a variety of wastewater treatment unit processes. The evaluation of operation of these processes by determination of the information and testing required for evaluation and performing the subsequent necessary calculations. Lect. 3 hrs., Lab. 4 hrs., Total 7 hrs. per wk.

ENVR 167 Fundamentals of Solids Processing (4 cr.)
The engineering principles and practices and the desired function and operation of a variety of solid waste and sludge treatment unit processes. The evaluation of the operation of these processes by determination of the information and testing required for evaluation and performing the subsequent necessary calculation. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

ENVR 168 Wastewater Treatment Plant Control (4 cr.)
Analytical and control procedures required in the operation of the unit processes which will be used in wastewater treatment plants. The procedures to operate the treatment plants during routine and emergency conditions as well as use of these procedures to "trouble shoot" isolated or anticipated operational problems. Lect. 3 hrs. Lab. 3 hrs., Total 6 hrs. per wk.

ENVR 216 Water Supply and Wastewater Collection (3 cr.)
The engineering aspects of water supply, water distribution, waste water collections and waste water removal and disposal. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

FIRE SCIENCE

FIRE 100 Introduction to Fire Science (3 cr.)
History and philosophy of fire service at the local, state, and national level with emphasis on the organization of the individual fire department; analysis of the overall fire problem, communications, maintenance, training, company fire fighting capabilities, apparatus and equipment. Lect. 3 hrs. per wk.

FIRE 106 Fundamentals of Fire Service Administration (3 cr.)
A study of department and company organization and management, administrative procedures and methods, budgeting and reporting, control of resources, and maintenance of records. Lect. 3 hrs. per wk.

FIRE 108 Fundamentals of Fire Suppression (3 cr.)
Basic concepts involved in fire suppression including fire behavior, principles of fire fighting as applied to small and large scale fires, problems involving the use of tactics, size-up, strategy and employment of equipment and manpower at various echelons. Lect. 3 hrs. per wk.

FIRE 109 Fire Suppression Operations (3 cr.)
Prerequisite FIRE 108. The distribution and use of equipment, organization for major fires, pre-planning, command post operations, communications, equipment design and maintenance, and tactics. Lect. 3 hrs. per wk.

FIRE 111 Hazardous Materials I (3 cr.)
Identification and characteristics of materials contributing to fire hazards including chemical, gases, flammable liquids, and radiological materials, and an examination of their storage, handling and transportation, and related fire science problems. Lect. 3 hrs. per wk.

FIRE 112 Hazardous Materials II (3 cr.)
Prerequisite FIRE 100 and FIRE 111. Hazardous materials covering storage, handling, laws, standards, and fire fighting techniques associated with chemicals, gases, flammable liquids, and radio-active materials. Lect. 3 hrs. per wk.

FIRE 116 Fundamentals of Fire Prevention (3 cr.)
An introduction to fire safety through study of fire causes, inspection and investigation procedures. Lect. 3 hrs. per wk.

FIRE 119 Industrial Fire Protection (3 cr.)
Prerequisite FIRE 116, 120 or permission of division. A study of industrial fire protection that fits the needs of every industry, health care facility, business and educational institution. The course deals with organizing for fire safety, hazard control, prefire planning operations and fire control systems. Lect. 3 hrs. per wk.

FIRE 120 Fire Protection Equipment and Systems (3 cr.)
Topics covered are the examination and utilizing of portable extinguisher equipment, sprinkler systems, protection systems for special hazards, and fire alarm and protection systems. Opportunities for visits to local facilities having equipment and systems affording a critical appraisal. Lect. 3 hrs. per wk.

FIRE 137 Fire Fighting Tactics and Strategy (3 cr.)
Prerequisite FIRE 100 and FIRE 108. Review of combustion and extinguishment. The problems during size-up; developing and implementing tactics and strategy during fires; and the leadership required on the fire ground. Lect. 3 hrs. per wk.

FIRE 141 Fire Administration (3 cr.)
Prerequisite FIRE 100. A study of the personnel responsibility of managers. Centers on line-staff relationships, social change, managerial attitudes and decisions, general organizational planning, and career development for managers. Lect. 3 hrs. per wk.

FIRE 146 Fire Administration and Law (3 cr.)
Application of guideposts relative to firemen and law. Includes introduction to law, the judicial system, city's liability for acts of the fire department, fire prevention bureaus, and general liabilities of firemen. Lect. 3 hrs. per wk.

FIRE 147 Methods of Fire Instruction (3 cr.)
This course is designed to prepare Fire Management Personnel who conduct the in-service training of fire fighters at local Fire Departments. Emphasis will be on development of training methods and aids, such as role-playing, small group discussion & development of individualized learning materials & methods. Each student will be required to develop and present a segment of the fire fighting curriculum of his local fire department. Lect. 3 hrs. per wk.

FIRE 208 Water Distribution Systems (3 cr.)
Principles, techniques, and application of water distribution systems in fire fighting. Emphasis on the use of underground mains, private water supplies, public water systems, hydrants, hose and standpipes. Laboratory equipment and materials will supplement lectures. Lect. 3 hrs. per wk.

FIRE 216 Fire Hydraulics and Equipment (4 cr.)
Prerequisite FIRE 100. Review of basic mathematics; laws and formulas applied to fire service hydraulics, development of mental ability to solve fire flow requirements, water supply needs, and consideration of equipment standards. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

FIRE 218 Applied Mechanics — Fire Hydraulics (3 cr.)
Prerequisite FIRE 216. Advanced study in the understanding of incompressible fluids including: fluid properties, fluid statics, fluid flow systems, flow measurements, and water transfer. Applications are related to engine-pressure-nozzle-pressure relationships, and fire protection systems such as sprinklers and standpipes. Lect. 3 hrs. per wk.

FIRE 227 Building Construction and Codes (4 cr.)
The various types of construction materials and their properties with emphasis on the effect of heat, water, and internal pressures generated under fire conditions. Familiarization with national, state and local ordinances and codes which influence the fire protection field. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

FIRE 228 Codes and Ordinances (3 cr.)
Familiarization with national, state and local laws; ordinances and codes which influence the field of fire prevention and protection; legal aspects of fire prevention and related problems. Lect. 3 hrs. per wk.

FIRE 237 Arson Detection and Investigation (3 cr.)
Prerequisite FIRE 100. Introduction to arson laws and types of incendiary fires. Determining fire causes, recognizing and preserving evidence; interrogation of adults and juveniles; court procedures. Lect. 3 hrs. per wk.

FIRE 247 Fire Station Management (3 cr.)
Current and new concepts in dealing with fire station management problems. This includes involvement in problem areas such as communities, individual and group behavior, subordinate-supervisor relationships and the decision making process. Lect. 3 hrs. per wk.

FIRE 290 Coordinated Internship (1-5 cr.)
(see page 91)

FIRE 298 Seminar and Project (1-5 cr.)
(see page 91)

FORESTRY

FORE 117 Dendrology (4 cr.)
A survey of the plant kingdom followed by a study of the commercially important trees of the United States. Emphasis upon field characteristics and environment of the trees of the Southeast. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

FORE 131 Wildlife and Fisheries Management (4 cr.)
An introduction to the principles of wildlife and fisheries management. Emphasis on practices in the southeastern United States. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

FORE 132 Forest Recreation (4 cr.)
A study of recreational use of forest resources including an understanding of the psychology of recreation, planning, and design of forest recreation areas. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

FRENCH

FREN 101-102-103 Elementary French I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the speaking, understanding, reading, and writing of French with emphasis on manipulation of the structure of the language. Lect. 3 hrs., Lab. and drill 2 hrs., Total 5 hrs. per wk. Not recommended for students who have, within the past two years, received two years high school or one year college credit for this language.

FREN 104-105 Introductory French I-II (6 cr.) (6 cr.)
The understanding, speaking, reading, and writing of French with emphasis on manipulation of the structure of the language. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

FREN 106 Review of Introductory French (5 cr.)
An intensive review of French structure and phonology; designed for students who have had some previous training in French, but whose proficiency does not qualify them for French 201. Permission of the division required. Lect. 5 hrs. per wk.

FREN 107 Conversation in French (3 cr.)
Prerequisite FREN 103. Practice in speaking French, stressing correctness of structure, pronounciation, fluency, and the vocabulary of everyday situations. Lect. 3 hrs. per wk.

FREN 199 Supervised Study (1-5 cr.)
(see page 91)

FREN 201-202-203 Intermediate French I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite FREN 103 or successful completion of two years of high school French and division permission. Advanced study in the speaking, understanding, reading and writing of French. French is used in the classroom. Lect. 3 hrs., Lab. and drill 2 hrs., Total 5 hrs. per wk.

FREN 204-205 Intermediate French I-II (6 cr.) (6 cr.)
Prerequisite FREN 105 or successful completion of two years of high school French and division permission. Advanced study in the understanding, speaking, reading, and writing of French. French used in the classroom. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

FREN 231-232-233 Introduction to French Civilization and Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite FREN 203 or equivalent. An introduction to the background of French life and culture and to the outstanding contributions of France to world civilization from medieval times to the present. Reading is in the original French and French is used in the classroom. Lect. 3 hrs. per wk.

FREN 298 Seminar and Project (1-5 cr.)
(see page 91)

FREN 299 Supervised Study (1-5 cr.)
(see page 91)

GENERAL

GENL 98 Seminar and Project (1-5 cr.)
(see page 91)

GENL 100 Orientation (1 cr.)
This course, required of all beginning college students, is designed essentially as an instrument of group guidance and deals with such problems as adjustment to college, purposes and functions of the college; planning for the future and making the most of the college years and what the college has to offer. Particular emphasis is placed on experiences designed to improve study habits and skills such as reading, listening, and library activities. Lect. 1 hr., Total of 1 hr. per wk.

GENL 108 Career Education (3 cr.)
A survey of the career options available to individuals to facilitate more rational and valid career planning and preparation. The Career Education Program is sequenced and postured to optimize career development and should provide a broad base of understanding of self and the world of work. It is designed so students will have two options at several levels: continuing in higher education or seeking job satisfaction in employment. Lect. 3 hrs. per wk.

GEOGRAPHY

GEOG 240 Introduction to Physical Geography (3 cr.)
A study of the major elements of the natural environment such as land forms, weather and climate, natural vegetation, and soils. Lect. 3 hrs. per wk.

GEOG 250 Introduction to Cultural Geography (3 cr.)
A survey of landscape modification through human agencies and the relationships of culture and geography. Lect. 3 hrs. per wk.

GEOG 260 Introduction to Economic Geography (3 cr.)
A geographic survey of primary production, manufacturing, mining, and trade, covering agriculture, forestry, and fishing. Lect. 3 hrs. per wk.

GEOG 299 Supervised Study (1-5 cr.)
Prerequisite division approval (see page 0)

GEOLOGY

GEOL 101-102-103 General Geology I-II-III (4 cr.) (4 cr.) (4 cr.)
Physical geology, the various modifying agencies at work upon the earth, and their effects. The composition and structure of the earth as a whole. Historical geology, the history of the earth and its plants and animals from the beginning to the present, with emphasis on the principles involved in interpreting geologic evidence. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

GEOL 104-105 General Geology I-II (6 cr.) (6 cr.)
Physical geology, the various modifying agencies at work upon the earth, and their effects. The composition and structure of the earth as a whole. Historical geology, the history of the earth and its plants and animals from the beginning to the present, with emphasis on the principles involved in interpreting geologic evidence. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

GEOL 199 Supervised Study in Geology (1-5 cr.)
(see page 91)

GERMAN

GERM 101-102-103 Elementary German I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the understanding, speaking, reading, and writing of German with emphasis on manipulation of the structure of the language. Lect. 3 hrs., Lab. and drill 2 hrs., Total 5 hrs. per wk. *Not recommended for students who have, within the past two years, received two years high school or one year college credit for this language.*

GERM 104-105 Introductory German I-II (6 cr.) (6 cr.)
The understanding, speaking, reading, and writing of German with emphasis on manipulation of the structure of the language. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

GERM 106 Review of Introductory German (5 cr.)
An intensive review of German structure and phonology; designed for students who have had some previous training in German, but whose proficiency does not qualify them for German 201. *Permission of the division required.* Lect. 5 hrs. per wk.

GERM 199 Supervised Study (1-5 cr.)
(see page 91)

GERM 201-202-203 Intermediate German I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite GERM 103 or successful completion of two years of high school German and division permission. Advanced study in the understanding, speaking, reading and writing of German. German is used in the classroom. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

GERM 231-232-233 Introduction to German Literature I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite GERM 203 or equivalent. Readings in selected works of German literature. German is used in the classroom. Lect. 3 hrs. per wk.

GERM 299 Supervised Study (1-5 cr.)
(see page 91)

GOVERNMENT

GOVT 110 Survey of American Political Parties (3 cr.)
A survey of the development of American political parties. Emphasis on local, state, and federal organization of political parties, conventions, and elections. Lect. 3 hrs. per wk.

GOVT 116 Political Resources of the Community (3 cr.)
The rights and responsibilities of participating in the decision-making processes of local, state and federal government, particularly in relation to the various governments and agencies within the community college districts. Resources available for development of sound child and family patterns. Lect. 3 hrs. per wk.

GOVT 180 American Constitutional Government (3 cr.)
An introductory course in American government, including fundamental concepts and principles of our constitutional system at the national, state and local levels. Lect. 3 hrs. per wk.

GOVT 185 Introduction to Local Government (3 cr.)
An introduction to the theory, structure, and function of local government in the United States, with particular emphasis on municipal government in Virginia. Lect. 3 hrs. per wk.

GOVT 187 American National Government (5 cr.)
The organization, structure and functions of the national government in the United States. If credit was given for either GOVT 180, GOVT 186, or GOVT 281-282-283, credit cannot be obtained for this course. Lect. 5 hrs. per wk.

GOVT 188 State and Local Government (5 cr.)
A study of the theory, structure and functioning of, and interrelationships among, state and local governments in the United States, with illustrations from Virginia jurisdictions. Lect. 5 hrs. per wk.

GOVT 199 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

GOVT 211 International Relations I (3 cr.)
An analysis of the international political system. Includes an introduction to theoretical and analytical approaches to the understanding of the international system and an analysis of the economic, geographic, demographic, and ideological factors and problems affecting the behavior of states toward one another. Lect. 3 hrs. per wk.

GOVT 212 International Relations II (3 cr.)
A study of international law and international organizations. The study examines both the origin and the functions of law and organization within the international state system. Lect 3 hrs. per wk.

GOVT 213 International Relations III (3 cr.)
An examination of the contemporary international political system, concentrating on the policies of the major powers, the motivations and goals of those policies, and the major problems of conflict and adjustment in the contemporary system. May be taken nonsequentially. Lect. 3 hrs. per wk.

GOVT 281-282-283 United States Government I-II-III (3 cr.) (3 cr.) (3 cr.)
Elements of political science, powers, organization and functions of the legislative, executive and judicial branches of the national, state and local governments in the United States; democracy, federalism, the Constitution and civil liberties. These courses need not be taken sequentially. 3 Lect. hrs. per wk.

GOVT 284-285 United States Government I-II (5 cr.) (4 cr.)
Elements of political science, powers, organization, and functions of the legislative, executive, and judicial branches of the national, state and local governments in the United States; democracy, federalism, the Constitution, and civil liberties. Lect. 5-4 hrs. per wk.

GOVT 298 Seminar and Project (1-5 cr.)
(see page 91)

GOVT 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

HEALTH

HLTH 100 Orientation to Allied Careers (1 cr.)
An orientation to the interrelated roles and functions of various members of the health team. Lect. 1 hr. per wk.

HLTH 104 First Aid I (2 cr.)
The principles and techniques of safety and first aid according to the accepted content of a standard first aid course. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

HLTH 105 First Aid II (3 cr.)
Safety and first aid according to the accepted content of an advanced first aid course with related safety projects and problems. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

HLTH 106 First Aid and Safety (3 cr.)
The principles and techniques of safety and first aid according to accepted content of a standard first aid course. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HLTH 110 Concepts of Personal and Community Health and Safety (3 cr.)
A course designed to study the concepts related to the maintenance of health, principles of safety, and the prevention of illness at the personal and community level. Lect. 3 hrs. per wk.

HLTH 118 Community and Personal Health (5 cr.)
The study of community and individual health problems involving mental illness, alcohol, tobacco, drugs, venereal disease and communicable diseases; medical care, disease prevention, physical fitness, nutrition and weight control; and community and world health problems and safety. Lect. 5 hrs. per wk.

HLTH 120 Medical Terminology (5 cr.)
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, stem words, and technical terms with emphasis on proper spelling and usage. Lect. 5 hrs. per wk.

HLTH 124 Medical Terminology I (3 cr.)
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, stem words and technical terms with emphasis on proper spelling and usage. Lect. 3 hrs. per wk.

HLTH 125 Medical Terminology II (2 cr.)
A continuation of HLTH 124 for those students in health-related curriculums requiring additional understanding of medical terms. Lect. 2 hrs. per wk.

HLTH 146 Occupational Injury and Disease Control (3 cr.)
Prerequisite 1 unit each of high school chemistry and physics or divisional approval. A study of environmental energy, physical and chemical hazards, including gases, vapors, dusts, fumes and mists; the importance of personal protective equipment and contamination control methodology. Lect. 3 hrs. per wk.

HLTH 150 Concepts of Disease (3 cr.)
Prerequisite NASC 113 or divisional permission. A survey course designed specifically for students enrolled in health technology programs. General principles classification, causes and treatment of selected disease processes are presented. Lect. 3 hrs. per wk.

HLTH 156 Child Health and Nutrition (3 cr.)
Understanding the physical needs of the pre-school child and the methods by which these are met. Emphasis upon health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety as related to health growth and development. Lect. 3 hrs. per wk.

HLTH 216 Infant-Toddler Development and Care (3 cr.)
Prerequisite HLTH 110 and PSYC 130. Growth and development during pre-natal period to toddlerhood. Various infant programs throughout the U.S. will be analyzed and discussed. The importance of good physical and psychological environment will be studied as related to overall development of child. Lect. 3 hrs. per wk.

HISTORY

HIST 101-102-103 History of Western Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
The development of civilization from Ancient times to the present. The second and third quarters deal with the survey of the periods from the Renaissance and Napoleonic Wars respectively. Preferable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 104-105 History of Western Civilization I-II (5 cr.) (4 cr.)
The development of western civilization from ancient times to the present. Lect. 5-4 hrs. per wk.

HIST 111-112-113 American History I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of United States history from its beginning in early colonial times to the present. Preferable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 114-115 American History I-II (5 cr.) (4 cr.)
A survey of the United States history from its beginning in early colonial times to the present. Lect. 5-4 hrs. per wk.

HIST 160 Women in History (3 cr.)
A survey of the role of women and attitudes towards women in the Western world, with emphasis on women in American History. An inquiry into the origins of these attitudes will be followed by a survey of the role of women in various societies. Finally, the contemporary women's movement will be examined in the light of historical perspective. Lect. 3 hrs. per wk.

HIST 187-188-189 History of the Afro-American I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of Black history, his relationships and contributions to the American society; the period of slavery; the period of caste subordination; the period of new mobility and growing Black protest. Preferrable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 215 American Revolution (3 cr.)
A detailed examination of the factors that led to the separation of the American colonies from Great Britain, the war that ensued, the problems faced by the revolutionary government, and the subsequent events leading to the adoption of the U.S. Constitution. Lect. 3 hrs. per wk.

HIST 216 The American Civil War (3 cr.)
A detailed examination of the factors that led to the rupture of the union, the war that ensued, the internal affairs of the United States and the confederate states, and the ultimate results of the conflict. Lect. 3 hrs. per wk.

HIST 221-222-223 American Economic History I-II-III (3 cr.) (3 cr.) (3 cr.)
First quarter deals with economic history of the 19th century and early 20th century in the United States. The second quarter places emphasis on the 1920's and 1930's. The third quarter covers the period since 1930. Preferrable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 231-232-233 Survey of Asian Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of the civilizations of Asia, from their origins to the present day, with emphasis on their cultural aspects. The first quarter considers the Indian subcontinent; the second quarter, China, Japan, and Korea; and the third quarter, the countries of Southeast Asia. Preferable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 281-282-283 A Survey of Latin American Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of Latin American civilization—in its political, economic, and social aspects—from Iberian and Pre-Columbian origins down to the present day. Preferable but not mandatory that courses be taken sequentially. Lect. 3 hrs. per wk.

HIST 298 Seminar and Project (1-5 cr.)
(see page 91)

HIST 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

HORTICULTURE

HORT 100 Introduction to Horticulture (4 cr.)
An introduction to the commercial horticulture industry and an overview of horticultural technology including occupational opportunities. Survey of basic structures, equipment, facilities, and physical arrangements of nurseries, green houses and floral establishments. An introduction to growing, facility maintenance, transplanting and planting will form the laboratory experience. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HORT 107 Plant Propagation (3 cr.)
Principles and applied practices of sexual and asexual methods of commercial and home propagation of horticultural plants. Skill-oriented emphasis placed on propagation techniques using seed, cuttings, grafting, budding, layering, and division. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 120 Soils (4 cr.)
Theoretical and practical knowledge of soils in terms of horticultural activity. Includes soil identification, properties, analysis, fertilizers, sterilization, mixtures, and safety measures involving equipment used in soil work. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HORT 126 Landscape Construction and Maintenance (3 cr.)
Development of skills and competencies in practical application of landscape design theory. Construction, planting, and maintenance of a class landscaping project required. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

HORT 130 Environmental Factors in Plant Growth (3 cr.)
Environmental factors which affect plant growth including rainfall, humidity, wind, temperature, sunlight, irrigation, heating, and shading methods. The relationship of day-length and flowering, supplemental lighting and darkening systems, dormancy, and methods of inducing and breeding dormancy. Lect. 3 hrs. per wk.

HORT 136 Interior Landscaping (2 cr.)
Examines theoretical principles and applied practices of design, layout, selection, planting and maintenance of plant materials suitable for indoor use in residential and public buildings. Includes assessment of client needs; preparation of contracts and specifications and construction materials. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

HORT 146 Horticulture Botany (4 cr.)
An elementary study of the principles of botany with application in commercial horticulture, considers fundamental aspects of taxonomy, anatomy, reproduction, morphology, physiology, and genetics of plants. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HORT 147 Horticulture for Recreation and Parks (3 cr.)
Designed to introduce Recreation and Park students to horticultural methods and materials as they apply to the field of Recreation and Parks. The course will cover the types of plant materials used in Recreation and Parks, and methods developed for their use. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

HORT 148 Landscaping in Recreational Areas (3 cr.)
Designed to give the students experience and knowledge in proper landscape design for recreation areas. Emphasis will be placed on proper design of plantings and environmental improvement. Lect. 1 hr., Lab., 4 hrs., Total 5 hrs. per wk.

HORT 156 Greenhouse Crop Production (3 cr.)
Examines commercial practices related to production of major floricultural crops. Consideration of production requirements, environmental control and management, and cultural techniques affecting production of pot plants and cut flowers. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 157 Fruit Production (3 cr.)
Principles and applied practices of home and commercial production of soft and tree fruits. Considers selection, culture, handling, storage and processing of major fruit types. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 158 Vegetable Production (2 cr.)
A study of principles and practices of home and commercial vegetable production; examines crops of major economic importance in regard to classification, culture, soil preparation, cultivation, weed control, crop rotation, insect and disease control, marketing, and storage. Lect. 2 hrs., Total 2 hrs. per wk.

HORT 190 Coordinated Internship (1-5 cr.)
(see page 91)

HORT 198 Seminar and Project (1-5 cr.)
(see page 91)

HORT 199 Supervised Study (1-5 cr.)
(see page 91)

HORT 210 Plant Pests (4 cr.)
The common plant pests emphasizing the insects and fungi. Includes identification, life cycles, plant damages and their identification. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HORT 211 Plant Pest Control (3 cr.)
The current methods of controlling insect and fungal pests. The presently used pesticides, insecticides, and herbicides, studied from the standpoint of specificity, selectivity, and total ecological considerations regarding their use. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 220 Nursery Management (3 cr.)
The aspects of nursery work including plant growing, planting, transplanting, balling, burlaping, business methods in the nursery, buying and stocking the nursery and merchandising in this specialized area. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 226 Garden Center Management (3 cr.)
The commercial practices of garden center operations. Examines planning, layout and landscaping of premises, the selection, buying, maintenance and display of plant materials for the home gardening market. The pricing and merchandising methods of plants, and customer relations. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 230 Greenhouse Management (3 cr.)
The phases of greenhouse activity including seedbed preparation, plant selection, and utilizing the materials presented in prerequisite courses as they apply to growing under glass; business and selling practices peculiar to this phase of the industry. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 240 Turf Green Management (3 cr.)
The study of turf grasses in use in this geographical area including propagation and production, planting, maintenance, weed control, insect and disease control, trouble shooting problems, studies regarding the relationships between turf grasses, soils, fertilizers, irrigation and drainage requirements. Practical experience in turf grass management in park areas and golf courses. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 250 Landscape Planning (2 cr.)
The basic symbols used in landscape plans. Drafting and blue print reading, the preparation of simple landscape plans, and the interpretation of plans designed by a landscape architect. Includes the fundamentals of landscape design, planning areas, walks, drives, and the effective use of trees, lawn, shrubs, ground cover, and foundation planting. Lab. 4 hrs., Total 4 hrs. per wk.

HORT 256 Woody Plants (3 cr.)
Identification, culture, and uses of woody plants used in landscaping. Includes deciduous and evergreen, wild and cultivated shrubs and trees. Lab. 6 hrs. per wk.

HORT 257 Herbaceous Plants (3 cr.)
Identification, culture and uses of annuals, biennials, and perennials used in landscaping. Lab. 6 hrs., Total 6 hrs. per wk.

HORT 260 Flower Shop Management (3 cr.)
The art of floral design as to form, style, and composition. Considers location, management, and operation of a flower shop, and the arrangement of flowers for home, church, hotels, and public buildings. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 266 House and Conservatory Plants (3 hrs.)
Identification, culture, and propagation of pot and conservatory plants. Considers the environmental problems unique to the growth of indoor plants and their use in indoor landscaping. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HORT 270 Floral Design and Arranging I (2 cr.)
A practical introduction to floral design. Student practice in the basic methods of design and in producing arrangements. Lab. 6 hrs. per wk.

HORT 276 Floral Design and Arranging II (2 cr.)
A continuation of floral design and arranging with emphasis on acquisition of basic skills related to floral designs created by retail florists. Students will design and create wreaths, baskets, sprays, wedding flowers and corsages in the laboratory. Lab. 4 hrs. per wk.

HORT 290 Coordinated Internship (1-5 cr.)
(see page 91)

HORT 298 Seminar and Project (1-5 cr.)
(see page 91)

HOTEL, RESTAURANT, AND INSTITUTIONAL MANAGEMENT

HRIM 100 Introduction to Hotel/Restaurant Management (3 cr.)
A survey of the history, organization, opportunities, and problems of the hospitality industry. Includes departmental functions, personnel practices, credit procedures, security routines, and typical job requirements. Emphasis will be on current trends and developments in the industry. Lect. 3 hrs. per wk.

HRIM 111-112-113 Food Science I-II-III (3 cr.) (3 cr.) (3 cr.)
Interrelationship of the physical, biological and chemical principles of food, food preparation, food equipment, and food manufacturing processes. Lect. 3 hrs. per wk.

HRIM 124-125 Principles of Food Preparation I-II (4 cr.) (4 cr.)
Applications of scientific principles and techniques to food preparation. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HRIM 126 Principles of Commercial Food Preparation (4 cr.)
A study of the principles of commercial cooking in large quantities, use of equipment and cooking techniques. Presentation of the problems and potentials of cooking in large quantities to include: work flow, alternate cooking methods, different types of food establishments. Lect. 2 hrs., Lab. 4 hrs., Total 6 hrs. per wk.

HRIM 140 Principles of Baking (4 cr.)
Application of scientific principles and techniques of baking. Lect. 3 Hrs., Lab. 3 hrs., Total 6 hrs. per wk.

HRIM 146 Hotel/Motel Organization and Management (3 cr.)
A study of the past, present and future of the hospitality industry; organization as a modern tool of management; and the organization of hotel operations. Lect. 3 hrs. per wk.

HRIM 147 Restaurant/Institution Organization and Management (3 cr.)
A thorough analysis of the nature and scope of departmental functions in the food service industry. Emphasis placed on operational practices and problems. Lect. 3 hrs. per wk.

HRIM 149 Commercial Food Production Management (3 cr.)
Principles of commercial cooking; a study of management's role in setting up and running a commercial cooking operation, menu planning, menu evaluation, standardization of recipes, and scheduling of manpower. Lect. 3 hrs. per wk.

HRIM 156 Club Management (3 cr.)
Problems peculiar to the organization and management of private clubs such as boards of directors, committee organization, legal aspects, and financial considerations. Lect. 3 hrs. per wk.

HRIM 164-165-166 Tourism Principles and Practices I-II-III (3 cr.) (3 cr.) (3 cr.)
Covers the day to day procedures, practices and systems of travel agencies, including ticketing, routing, reservations, etc. Utilizes the workshop approach. Lect. 3 hrs. per wk.

HRIM 167 International Travel and Tourism (3 cr.)
An analysis of the international organization of tourism; the role of the physical environment and cultures; and tourism as a factor in the economic development of these societies. Lect. 3 hrs. per wk.

HRIM 168 Executive Housekeeping (3 cr.)
A detailed study of the housekeeping department with emphasis on organization, staffing and scheduling, staff development, work methods improvements, equipment, cleaning materials and cleaning procedures; maintenance and refurnishing, room design and safety engineering. Lect. 3 hrs. per wk.

HRIM 169 Travel Destination Geography (3 cr.)
To provide the student with the geographic knowledge necessary to provide efficient, effective service to clients of a travel agency. All regions of the world will be studied to determine the following information: (1) Important physical features (2) Climate (3) Areas of touristic importance (4) Primary routings from Washington area (5) Primary types of tourism and (6) Documentation needed for visit. Lect. 3 hrs. per wk.

HRIM 170 Introduction to Cafeteria Management (3 cr.)
Survey of the management functions of planning, organizing, staffing, directing, and controlling and their application to public school cafeterias. The case study method will be used to analyze cafeteria management problems. Lect. 3 hrs. per wk.

HRIM 176 Cafeteria Record Keeping (3 cr.)
Cash register operations and lunch count, bank deposits, and daily record of cash and expenditures; keeping state and federal records (sl 12 and sl 13), monthly reports, perpetual inventories of equipment, and food purchasing and receiving records; personnel and payroll systems. Lect. 3 hrs. per wk.

HRIM 179 Principles of Group Travel Planning (3 cr.)
Introduces the advanced travel student to those procedures and practices commonly used in the travel industry to plan travel programs for various sized groups. Studies how to set up a system and organization within a travel agency to handle group business. Lect. 3 hrs. per wk.

HRIM 186 Equipment Layout-Design (3 cr.)
Design, layout and specification requirements of food service equipment. Work measurement studies applied to quantity food production and its interrelationship to manpower and equipment requirements. Lect. 3 hrs. per wk.

HRIM 187 Food Service Facilities, Design and Layout (3 cr.)
A basic course designed to translate a Food Service Facility Study Report into a completed functional arrangement plan of a food service facility. It covers an introduction to blueprint reading and basically the techniques and tools used in drafting including the use of templates. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

HRIM 188 Marketing of Hospitality Services (3 cr.)
Principles and practices of marketing the services of the Hotel & Restaurant Industry. Consideration of the marketing concept; methods leading to customer satisfaction with attention to internal and external stimulation of sales. Lect. 3 hrs. per wk.

HRIM 189 Marketing and Sales Management for Travel Industry (3 cr.)
Applies marketing sales promotions and advertising theories and techniques to the sales problems of retail travel agencies. Emphasis is placed on the identification of new markets and methods suggested for reaching and selling these markets. Cases are drawn from tourist motivational organizations, such as travel agencies, tour companies, travel wholesalers, transport companies, travel publications, and governmental promotional organizations. Lect. 3 hrs. per wk.

HRIM 190 Coordinated Internship (1-5 cr.)
(see page 91)

HRIM 197 Cooperative Education (1-5 cr.)
(see page 91)

HRIM 236 Sanitation (3 cr.)
Prerequisite high school general science, biology, or chemistry. The moral and legal responsibilities involved in assuring sanitary conditions in the food service establishment. Emphasis on the causes and prevention of food poisoning. Lect. 3 hrs. per wk.

HRIM 264-265 Food and Beverage Cost Controls I-II (3 cr.) (3 cr.)
Pre-cost, pre-control methods relative to the menu, production control, purchasing, receiving, inventory control, and profit of food service system. Lect. 3 hrs. per wk. (HRIM 264 is the prerequisite to HRIM 265)

HRIM 266 Food Purchasing (3 cr.)
Methods and procedures for purchasing food for hotels, restaurants and institutions; markets, federal and trade grades, governmental regulations, packaging, comparative versus price buying, yields and quality controls. Lect. 3 hrs. per wk.

HRIM 277 Personnel Management and Training for Hotel, Restaurants, and Institutions (3 cr.)
A course involving personnel management in the hospitality industry; a discussion of the sensitivities of management to the "human problems" of employees, the definition of goals, and the communication of enthusiasm toward these goals. Emphasis will be placed on the goal of proper training for services required in this industry. Lect. 3 hrs. per wk.

HRIM 286 Catering (3 cr.)
Prerequisite division permission. An applied course in banquet planning. Emphasis is placed on menu planning, purchasing, preparation, service details, sanitation, analysis and management. Students fill typical employee/supervisory positions in the presentation of a series of banquets. Total 5 hrs. per wk.

HRIM 287 Hotel/Motel Front Office Procedures (3 cr.)
An analysis of the jobs in the hotel-motel front office and procedures involved in registering, accounting for, and checking out guests. Lect. 3 hrs. per wk.

HRIM 289 Hotel and Motel Law (3 cr.)
A study of the laws applicable to the ownership and operation of hotels and motels. The duties to guests, ejection of undesirables, liabilities for personal injuries, damage, arrest and detention of offenders. Lect. 3 hrs. per wk.

HRIM 290 Coordinated Internship (1-5 cr.)
(see page 91)

HRIM 297 Cooperative Education (1-5 cr.)
(see page 91)

HRIM 298 Seminar and Project (1-5 cr.)
(see page 91)

HUMAN SERVICES

HMSV 106 Introduction to Human Services (3 cr.)
An overview of human service as a career field. Emphasis will be on developing the generalist concept and the role of the associate degree graduate to other human service personnel. Lect. 3 hrs. per wk.

HMSV 128 Community Resources and Services (3 cr.)
A study of federal, state, and local agencies, their functions, limitations and interrelationships. Emphasis is placed on determining stated purpose of an agency as related to delivery of human services, and procedures for referrals, team-building, and regional cooperation. Lect. 1 hr., Lab. 5 hrs., Total 6 hrs. per wk.

HMSV 134-135 Helping Relationships I-II (3 cr.) (3 cr.)
Development of skills needed to function effectively in helping relationships. A major emphasis will be to increase students' self-awareness in order to enable them to relate and help others more effectively. Students will learn to identify personal skill strengths and deficits, to set goals, and to develop plans for achieving personal and program goals. Second quarter emphasis will be transfer of these skills to client needs. Helping Relationships I is prerequisite for Helping Relationships II. Lect. 3 hrs. per wk.

HMSV 144-145 Group Process I-II (3 cr.) (3 cr.)
A study of the stages of group development, the role of the group leader and the various kinds of groups. Students will be introduced to various models of group processes that are involved in the helping process. Second quarter students will increase their skill development through increased experiences in group facilitating and leadership. Lect. 3 hrs. per wk.

HMSV 201-202-203 Gerontology I-II-III (3 cr.) (3 cr.) (3 cr.)
A study of the process of aging and its implications in relation to health, recreation, education, transportation, meaningful work or activity, and to community resources. Students will be provided opportunities for field experience and in-depth study of agencies concerned with senior adults. Emphasis will be on expanding awareness and knowledge in order to care for, and work with senior adults, both individuals and in agencies. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

HMSV 211-212-213 Alcohol/Drug Abuse Rehabilitation Programs I-II-III (3 cr.) (3 cr.) (3 cr.)
A comprehensive 3-quarter course designed to provide knowledge, skills, and insight for working with drug and alcohol abuse programs. The courses will emphasize personal growth, goal and value assessment, development of "helping relationships" and counseling for individual and group needs. Students will be provided opportunities for field experience in treatment center. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

HMSV 217 Recreation Activities for Senior Adults (3 cr.)
Provides competency in planning, evaluating and implementing programs and activities for senior adults, with special emphasis on awareness of limitations and aspirations for senior adults as individuals, in groups, and in institutions. Lect. 1 hrs., Lab. 5 hrs., Total 6 hrs. per wk.

HMSV 290 Coordinated Internship (1-5 cr.)
(see page 91)

HMSV 297 Cooperative Education (1-5 cr.)
(see page 91)

HMSV 298 Seminar and Project (1-5 cr.)
(see page 91)

HUMANITIES

HUMN 201-202-203 Survey of Western Culture I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of the Western world which correlates the art, music and literature of the following periods: Greek and Roman, Middle Ages, Renaissance, Elizabethan, Neo-classical, Victorian and Modern. Lect. 3 hrs. per wk.

HUMN 204-205 Survey of Western Culture I-II (5 cr.) (4 cr.)
A survey of the Western world which correlates the art, music and literature of the following periods: Greek and Roman, Middle Ages, Renaissance, Elizabethan, Neo-Classical, and Modern. Lect. 5-4 hrs. per wk.

INDUSTRIAL ENGINEERING

INDT 111-112 Materials and Processes of Industry I-II (3 cr.) (3 cr.)
The objective of this course is to familiarize the student with the materials and processes of modern industry from the drafting and design point of view. The physical properties of industrial materials such as ferrous, non-ferrous metals, woods, plastics and clay products will be studied in terms of design application, processing and fabricating methods. Students will be introduced to cutting, cold forming, hot working, welding, foundry and chipless manufacturing processes which are widely employed in contemporary industry. In addition, the science of precision measurement as applied to inspection practices will be studied. Lect. 3 hrs. per wk.

INDT 116 Instrumentation for Occupational Safety and Health (3 cr.)
Prerequisites HLTH 241 or 242. A practical course in the instrumentation utilized in occupational safety and health hygiene. A study of the working principles, calibration methods and use of field instruments and sampling devices. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

INDT 127 Safety and Health Standards, Regulations and Codes (3 cr.)
The development of safety standards and sources of standards, including an examination of government regulatory codes and an appraisal of consensus, advisory, and proprietary standards. Lect. 3 hrs. per wk.

INDT 130 Safety Program Organization and Administration (3 cr.)
An introduction to the techniques of organizing and administering practical safety programs, emphasizing safety as a management function. Lect. 3 hrs. per wk.

INDT 134 Power Source Hazards Control (3 cr.)
An examination of the physical hazards of the work environment and methods of control. Application of guarding principles and techniques pertaining to mechanical, electrical, pneumatic and hydraulic processes. Lect. 3 hrs. per wk.

INDT 136 Industrial Safety Design and Layout (3 cr.)
A study of the significant aspects of sights and facility planning, process and equipment layout, transportation facilities, illumination standards and color dynamics. Lect. 3 hrs. per wk.

INDT 170 Industrial Management (3 cr.)
A study of organizational structure: operational, financial, accounting and marketing activities, management responsibilities, planning, control, personnel, safety, labor relations, and factors essential to effective management. Lect. 3 hrs. per wk.

INDT 176 Industrial Safety (2 cr.)
Principles and practices of accident prevention, analysis of accident causes, mechanical safeguards, fire prevention, housekeeping, occupational diseases, first aid, safety organization, protection equipment and general safety principles and promotion of same. Lect. 2 hrs. per wk.

INDT 180 Introduction to Industrial Health (3 cr.)
The interrelationships of industrial medicine and industrial hygiene. A study of various occupational illnesses. Lect. 3 hrs. per wk.

INDT 190 Coordinated Internship (1-5 cr.)
(see page 91)

INDT 198 Seminar and Project (1-5 cr.)
(see page 91)

INDT 225 Human Factors and Safety Psychology (3 cr.)
A study of the stresses on the human system, both physiological and psychological, that contribute to the severity of industrial accidents. Lect. 3 hrs. per wk.

INDT 226 Plant Layout (3 cr.)
Arrangement and layout of physical facilities for maximum efficiency of production including stock arrangement, machines, layout of aisles, use of space and techniques for model construction. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDT 227 Sound and Noise (5 cr.)
A study of the physics of noise, instrumentation of noise evaluation and biological effects of noise in occupational environment. Lect. 3 hrs., Lab. 4 hrs., Total 7 hrs. per wk.

INDT 236 Work Place Maintenance (3 cr.)
A study of the hazards and conditions involving floors, walkways, ramps, stairs, ladders, mechanical and personal protective equipment, the maintenance management, schedules and controls and their relationship to the prevention of accidents. Lect. 3 hrs. per wk.

INDT 237 Preventative Maintenance (3 cr.)
Various types of maintenance programs, including maintenance management, schedules and controls, and the relationship of these operational matters to the prevention of accidents, injuries, and exposure to health hazards. Lect. 3 hrs. per wk.

INDT 246 Manufacturing Process Analysis (3 cr.)
Discussion and analysis of occupational safety and health based upon visits to commercial enterprises and surveying safety activities. Visits and discussions related to special industries. Lect. 3 hrs. per wk.

INDT 251 Occupational Environment I (3 cr.)
A study of sampling and analysis of chemical contaminants especially vapor and gases in the industrial environment. Includes sampling techniques and study of working principles and applications of field instruments and sampling devices. Lect. 3 hrs. per wk.

INDT 252 Occupational Environment II (3 cr.)
A study of sampling and analysis of chemical aerosals and solid particulates in the occupational environment. Includes sampling techniques and study of working principles and applications of field instruments and sampling devices. Lect. 3 hrs. per wk.

INDT 253 Occupational Environment III (3 cr.)
A study of measurement and analysis of the physical hazards posed by ionizing and non-ionizing radiation; heat and light. Includes methodology for evaluating industrial exposure to these hazards and study of appropriate instrumentation and of measures for protection of personnel. Lect. 3 hrs. per wk.

INDT 286 Quality Control (3 cr.)
Principles of inspection and quality control, with special emphasis on setting up, maintaining and interpreting control charts. Course content includes dimensional control, basic sizes, and applications of tolerances, allowances, limits, precision measurements, comparison measurements, industrial applications, optical, electrical and air limit gauges, comparator; inspection techniques, control charts, and statistics are introduced as quality control instruments. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDT 288 Production Planning and Control (3 cr.)
The preparation and analysis of production, planning based on sales forecasts, operation sheets, routing, scheduling, dispatching, follow-up, inventory control, receiving stores and shipping, control forms and reports. Lect. 3 hrs. per wk.

INTERIOR DESIGN

INDG 104 Techniques of Interior Design (3 cr.)
Evolution and development of an Interior Design problem. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDG 105 Drafting Techniques for the Interior Designer (3 cr.)
Introduction to designing, drafting and rendering residential and commercial floor plans and the spatial arrangement of furnishings. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 106 Isometrics and Model Construction (3 cr.)
Prerequisite INDG 105. Projecting floor plans into three dimensions and techniques of constructing architectural models. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 107 Perspective and Rendering (3 cr.)
Two and three point perspective, elevations and the execution of rendering for presentation. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 108 Color and Space Theories (3 cr.)
Communication through Interior Design. The psychological implications of the use of color and space with related problem solving in color arrangements as they relate to the interaction of light and space. Lectures in the history and evolution of color theory. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDG 109 Styles in Furniture and Interiors (3 cr.)
Prerequisite ARTS 111-112. Lectures and discussion of trends in furniture design and interior treatments as they parallel trends in architecture. Lect. 3 hrs. per wk.

INDG 206 Textiles, Floorcoverings, Wall and Window Treatments (3 cr.)
Survey of styles, techniques, problem solving and research into related manufactures and business techniques of estimating and pricing. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDG 207 Furniture, Lighting Equipment and Accessories (3 cr.)
Survey of styles in furniture, lighting, equipment and accessories, problem solving and research into related manufacturers and estimating. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDG 208 Advanced Drafting Technique (3 cr.)
Prerequisite INDG 105 or divisional approval. Advanced problems in residential and commercial blueprint drafting and interior arrangements. Lect. 1 hr., Lab. 4 hrs., Total of 5 hrs. per wk.

INDG 216 Business Procedures for Interior Designing (3 cr.)
Development and solving of problems in total job estimating, measuring, pricing and installation/labor techniques. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

INDG 217 Interior Design Trade Sources (3 cr.)
Comparative analysis of the major sources of supply and their products. Field trips and research with local manufacturers' showrooms. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 218 Interior Designing of Commercial Space (3 cr.)
Advanced problems in the handling of large scale interiors. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 219 Furniture Design, Construction & Upholstery (3 cr.)
Solving of practical problems in furniture fabrication. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 226 Fabric Design and Weaving (3 cr.)
Introduction to weaving and printing techniques for the Interior Designer. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 227 Fabrication & Construction of Wall & Window Treatments (3 cr.)
Methods of design and construction of wall and window treatments. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 228 Antiques (2 cr.)
Introduction to methods of evaluation, determining provenance and authenticity of antiques. Lect. 2 hrs. per wk.

INDG 229 Modern Interiors and Designers (3 cr.)
Philosophics and forms of modern architectural, interior, furniture and accessory design. Lect. 3 hrs. per wk.

INDG 236 Advanced Rendering and Presentation (3 cr.)
Prerequisite INDG 205. Continuation of rendering and presentation techniques. Lect. 1 hr., Lab. 4 hrs., Total 5 hrs. per wk.

INDG 290 Coordinated Internship (1-5 cr.)
(see page 91)

INDG 298 Seminar & Project (1-5 cr.)
(see page 91)

LEGAL

LEGL 126 Legal Research (3 cr.)
Provides an understanding of the function of the law library and will assist in developing research skills through the use of digests, encyclopedias, reporter systems and practice manuals. Lect. 3 hrs. per wk.

LEGL 134 Domestic Relations (3 cr.)
Elements of valid marriage, grounds for divorce and annulment; separation, defenses, custody, support, alimony, tax consequences; out-of-state divorces and validity; jurisdiction and service. Review and analysis of separation and custody agreements, documents in divorce proceedings, change of name proceedings and adoptions. Lect. 3 hrs. per wk.

LEGL 246 Law of Income Taxation (4 cr.)
A study of the law of income taxation—state, federal, and local—including preparation of income tax returns and related materials. A survey of the various administrative and judicial tribunals, and their jurisdiction, involved in the determination of income tax controversies. Lect. 4 hrs. per wk.

LEGL 256 Legal Aspects of Real Estate (4 cr.)
The law of real property and an in-depth survey of the more common types of real estate transactions and conveyances, such as deeds, contracts, leases, and deeds of trust, drafting problems involving these various instruments; special research projects; a study of the system of recording and search of public documents. Lect. 4 hrs. per wk.

MARKETING

MKTG 100 Principles of Marketing (3 cr.)
The principles, methods, and problems involved in the distribution and marketing of goods and services. The various marketing agents: wholesaler, broker, agent, cooperative, and trade associations. Discussions of present day problems and policies connected with the distribution and sale of commodities, pricing, advertising and promotion, and buyer motivation. Lect. 3 hrs. per wk.

MKTG 109 Principles of Salesmanship (3 cr.)
The place of sales in a customer oriented marketing organization. The development of an effective sales presentation. Emphasis on sales principles, methods and standards. Study of consumer buying habits and methods. Lect. 3 hrs. per wk.

MKTG 110 Fundamentals of Fashion (3 cr.)
Develops an understanding of the principles and procedures involved in the production, distribution and consumption of fashion merchandise. Traces the history and development of fashion and how these changes effect the modern merchandising world. Emphasis on changing consumer characteristics which influence demand for fashion products and effect that fashion marketing activities have on the economy. Lect. 3 hrs. per wk.

MKTG 131-132-133 Traffic and Transportation I-II-III (3 cr.) (3 cr.) (3 cr.)
The requirements for traffic managers in such fields as railroading, trucking, and air travel. Each quarter is based on the Chicago College of Traffic materials which are required for licensing examination. The course outlines the development of transportation, transportation regulations, and the regulations and applications of traffic management. Lect. 3 hrs. per wk.

MKTG 136 Retail Organization & Management (3 cr.)
The organization of businesses to accomplish their goals in the most effective and efficient manner. Location, layout, internal management, policy development, methods of operation, merchandise control and protection, property maintenance, and analysis of results. Lect. 3 hrs. per wk.

MKTG 150 Principles of Insurance (3 cr.)
A course in insurance principles and practices. Includes an examination of risks and applications in the principal fields of insurance including life, accident and health, fire, liability, surety, and property. Lect. 3 hrs. per wk.

MKTG 164 Principles of Real Estate I (3 cr.)
Practical applications of real estate management principles. Includes a study of contracts, deeds, mortgages, bonds, leases, search, real property leasing and appraisal. Lect. 3 hrs. per wk.

MKTG 165 Principles of Real Estate II (3 cr.)
Prerequisite MKTG 164. Continued examination of marketing fundamentals. Emphasis on techniques required for proper selection analysis and listing of real estate properties. How to determine needed data, how to analyze forms and records for recording and presenting data. Lect. 3 hrs. per wk.

MKTG 166 Real Estate Mathematics (3 cr.)
Designed to apply fundamental mathematics principles to special real estate problems. This includes, but is not limited to, allocation of areas of land, pricing land, computation of commissions, earnings on investment, calculation of escrow funds, and closing costs. Lect. 3 hrs. per wk.

MKTG 180 Introduction to Food Marketing (3 cr.)
Study of food marketing organization, practices, and problems with emphasis on the supermarket. Topics included are: economic importance of food marketing; history and development of food retailing, role of trade groups, systems of food distribution, food industry surveys, supermarket organization and management, food industry issues, and the future of the food industry. Lect. 3 hrs. per wk.

MKTG 197 Cooperative Education (1-5 cr.)
(see page 91)

MKTG 209 Sales Management (3 cr.)
From the viewpoint of management, study of the organization and operation of the sales division within the business enterprise. Planning, organizing, and controlling the total sales effort, use of the case method of learning. Lect. 3 hrs. per wk.

MKTG 216 Merchandise Information (3 cr.)
A study of merchandise including durables as well as non-durables. Includes detailed analysis of construction, uses, care and related government regulations. Value and quality standards for consumer use are stressed. Emphasis placed on usefulness of product information as a merchandising tool. Lect. 3 hrs. per wk.

MKTG 217 Color, Line and Design in Retailing (3 cr.)
The vital role played by color and design in almost every aspect of the marketing of consumer goods. Emphasis on styling, packaging, advertising, and professional layouts; basic sketching for art forms, balance and color harmony with recognition of basic period architecture as applied to consumer goods. Lect. 3 hrs. per wk.

MKTG 218 Fashion Merchandising (Buying and Control) (3 cr.)
Develops an understanding of the major considerations involved with the buying and merchandising of fashion products. Emphasis is placed on the dynamics of fashion and consumer buying patterns and courses of buying information are analyzed and studied. Discusses fashion buying and inventory control in the merchandising cycle; techniques used in developing fashion buying plans; model stock, unit control and inventory systems. Merchandising selection policy and pricing for profit. Lect. 3 hrs. per wk.

MKTG 219 Fashion Sales Promotion (3 cr.)
Designed to develop an understanding of the principles and procedures of selling fashion and simulates a creative approach to the promotion of fashion merchandising. Student studies sales promotion activities and selling appeals and approaches. Includes study of fashion advertisements, displays, publicity, and other sales promotion techniques involved in the merchandising of fashion items. Lect. 3 hrs. per wk.

MKTG 226 Merchandise Buying and Control (3 cr.)
The place of buying and inventory control in the merchandising cycle: the techniques used in developing merchandise plans, model stock, unit control, and inventory systems, merchandise selection policy and pricing for profits. Lect. 3 hrs. per wk.

MKTG 227 Advertising and Display (4 cr.)
A survey of the forms of advertising and the principles of display as they apply to retail and other distributive businesses. Emphasis on the principles of layout and copy, media selection, analysis of cost and results, and the coordination of advertising and display activities within the store. Lect. 3 hrs. per wk., Lab. 2 hrs. per wk., Total 5 hrs. per wk.

MKTG 228 Sales Promotion and Customer Relations (3 cr.)
The scope and total activities of a sales promotion program designed to coordinate advertising, display and publicity. Effective use of the sales forces and store policies to develop favorable customer relationships. Institutional practices which develop goodwill for the store. Lect. 3 hrs. per wk.

MKTG 266 Real Estate Sales (3 cr.)
The fundamentals of sales principles as they apply to real estate. The prospect, his motives, his needs, and his abilities to buy real estate. Relations of broker and salesman, salesman and client and community responsibilities. Writing contracts, closing and settlement, and follow-up relations. Lect. 3 hrs. per wk.

MKTG 267 Real Estate Appraisal (3 cr.)
Fundamentals of real estate evaluation; methods used in determining value; application of procedures and techniques by utilizing actual appraisals. Includes the opportunities available in the appraisal field of real estate activity. Lect. 3 hrs. per wk.

MKTG 268 Property Management (3 cr.)
The field of property management; professional aspects of real estate brokerage, properties, neighborhood analysis, tenants and qualifications, aspects of maintenance and repair. Lect. 3 hrs. per wk.

MKTG 269 Real Estate Finance (3 cr.)
Principles and practices of financing real estate sales and properties, analysis of various types of mortgage payments and contracts, financing homes and industrial properties and buildings; loan application, relations between correspondent and investor, construction loans. Lect. 3 hrs. per wk.

MKTG 276 Land Planning and Use (3 cr.)
Land value and usage, planning, zoning regulations, building and site requirements, sanitation and utilities, highest and best use concept, population analysis, influence of market forces and public policies. Lect. 3 hrs. per wk.

MKTG 277 Legal Aspects of Real Estate (3 cr.)
A study of Virginia real estate law including rights incident to property ownership and management, agency contract and application to real estate transfer, conveyancing, probate proceedings, trust transactions. Lect. 3 hrs. per wk.

MKTG 278 Real Estate Economics (3 cr.)
Nature and classification of land economics, the development of property, construction and subdivision, economic values and real estate evaluations, real estate cycles and business fluctuations, residential market trends, rural property and special purpose property trends. Lect. 3 hrs. per wk.

MKTG 279 Real Estate Investments (3 cr.)
An examination of real estate investments with emphasis on tax shelters, limited partnerships, syndications, exchanges and modern techniques or mortgage equity requirements and depreciation guidelines. Lect. 3 hrs. per wk.

MKTG 286 Supermarket Merchandising (3 cr.)
Prerequisite MKTG 180. Designed to acquaint the student with merchandising techniques as applied to the supermarket. Receiving, emphasis; the store manager's merchandising responsibilities; and analysis of profit centers, customer motivation; consumer dynamics; product information; space management; in store sales promotion and displays; inventory control; pricing, advertising, brand management; creative merchandising in specific departments; increasing departmental as well as store sales and profits. Lect. 3 hrs. per wk.

MKTG 287 Supermarket Operations (3 cr.)
Prerequisite MKTG 180. A study of operational aspects of the supermarket. Receiving attention; planning, organizing, and controlling the use of capital, personnel, equipment, and facilities; work methods; departmental operations; store security; housekeeping, supply control; sanitation; safety; scheduling; front-end management; cash control; and customer service. Lect. 3 hrs. per wk.

MKTG 297 Cooperative Education (1-5 cr.)
(see page 91)

MKTG 298 Seminar and Project (1-5 cr.)
(see page 91)

MKTG 299 Supervised Study (1-5 cr.)
(see page 91)

MATHEMATICS

MATH 01 Developmental Mathematics (1-5 cr.)
A developmental course which bridges the gap between a weak mathematical foundation and the knowledge necessary for the study of mathematical courses in technical and professional programs. Arithmetic, algebra, geometry and trigonometry will be covered. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

MATH 05 Basic Arithmetic (1-5 cr.)
A developmental course in review of arithmetical principles and computations, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

MATH 06-07 Basic Algebra I-II (1-5 cr.)
A developmental course in review of algebra, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

MATH 08 Basic Geometry (1-5 cr.)
A developmental course in review of geometry, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

MATH 09 Basic Trigonometry (1-5 cr.)
A developmental course in review of trigonometry, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Students may re-register for this course in subsequent quarters as necessary until the course objectives are completed. Variable hrs.

MATH 99 Supervised Study (1-5 cr.)
(see page 91)

MATH 101-102-103 Fundamentals of Mathematics I-II-III (3 cr.) (3 cr.) (3 cr.)
A study of concepts of numbers; fundamental operations with numbers, formulas and equations, graphical analysis, binary numbers, Boolean and Matrix algebra, linear programming, elementary concepts of statistics. Lect. 3 hrs. per wk.

MATH 118-119 Introduction to Technical Mathematics I-II (5 cr.) (5 cr.)
Applications of arithmetic, algebra, geometry and trigonometry to technical problems. Lect. 5 hrs. per wk.

MATH 121-122-123 Engineering Technical Mathematics I-II-III (5 cr.) (5 cr.) (5 cr.)
A course in algebra, geometry, trigonometry, and introductory calculus stressing technical applications. Prerequisite: Three units of high school mathematics including two units of algebra and one unit of geometry or MATH 119 or equivalent and a satisfactory score on a proficiency test. Topics include functions, systems of linear equations, right triangle trigonometry, logarithms, exponentials, trigonometric functions, conic sections, vectors, complex numbers, differentiation, and integration. Credit cannot be obtained for both this course and MATH 161-162-163. Lect. 5 hrs. per wk.

MATH 141-142-143 Introductory Mathematical Analysis I-II-III (Calculus with Analytic Geometry) (5 cr.) (5 cr.) (5 cr.)
A unified course in analytic geometry and calculus. Prerequisite: Four units of high school mathematics including two units of algebra, one of geometry, one half unit of trigonometry or equivalent and satisfactory score on a proficiency test. Students not adequately prepared for MATH 141 should complete MATH 161-162 prior to enrolling in MATH 141. Topics include functions, limits, derivatives, differentials, definite and indefinite integrals, infinite series, and applications. Lect. 5 hrs. per wk.

MATH 161-162 College Mathematics I-II (3 cr.) (3 cr.)
A course in precalculus mathematics. MATH 161-162 with MATH 163 completes a unified sequence in algebra, trigonometry, analytic geometry, and an introduction to calculus. Prerequisite: Three units of high school mathematics including two units of algebra and one unit of geometry or equivalent and a satisfactory score on a proficiency test. Topics include college algebra, functions, sequences and series, analytic geometry, logarithms, exponentials, matrices, trigonometry, and applications. Lect. 3 hrs. per wk.

MATH 163 College Mathematics III (3 cr.)
MATH 163 with MATH 161-162 completes a unified sequence in algebra, trigonometry, analytic geometry, and an introduction to calculus. MATH 163 with MATH 261-262 provides a one year calculus sequence designed for students with majors other than mathematics, physical sciences, or engineering. Prerequisite: MATH 162 or four units of high school mathematics including two units of algebra, one unit of geometry, and one half unit of trigonometry or equivalent. Topics include limits, continuity, differentiation, and applications. Lect. 3 hrs. per wk.

MATH 164-165 College Mathematics I-II (5 cr.) (4 cr.)
A two quarter version of MATH 161-162-163. Prerequisite and content as for MATH 161-162-163. Lect. 5-4 hrs. per wk.

MATH 181-182-183 General College Mathematics I-II-III (3 cr.) (3 cr.) (3 cr.)
Intended for students with majors other than mathematics, science or engineering. Prerequisite Algebra I and either Algebra II or Geometry and a satisfactory score on appropriate mathematics proficiency examinations. The first two quarters will include sets, the logic of algebra, the real numbers system, algebraic and

transcendental functions, relations and graphs. The third quarter will include permutations, combination, probability, elementary statistics, and trigonometry. Lect. 3 hrs. per wk.

MATH 191-192-193 Finite Mathematics I-II-III (3 cr.) (3 cr.) (3 cr.)
This course is intended for students with majors other than mathematics, physical sciences, or engineering. Prerequisite: Three units of high school mathematics including two units of algebra and one unit of geometry or equivalent and a satisfactory score on a proficiency test. Topics include sets, logic, probability, statistics, matrices, markov chains, linear programming, game theory, and mathematical modeling. Lect. 3 hrs. per wk.

MATH 198 Seminar and Project (1-5 cr.)
(see page 91)

MATH 199 Supervised Study (1-5 cr.)
(see page 91)

MATH 241-242-243 Advanced Mathematical Analysis I-II-III (Multivariable Calculus with Analytic Geometry—Differential Equations) (4 cr.) (4 cr.) (4 cr.)
Prerequisite: MATH 143 or equivalent. The first two quarters comprise an integrated program of study in multivariable calculus and linear algebra. Topics include matrices, determinants, vector spaces, eigenvalues, 3 dimensional analytic geometry, partial differentiation, multiple integration and applications. The third quarter consists of a program of study in differential equations. Topics include first order differential equations, linear differential equations, systems of differential equations, and applications. 5 class hrs. per wk.

MATH 261-262-263 Advanced College Mathematics I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite: MATH 163 or equivalent. A continuation of the calculus course begun in MATH 163 for students with majors other than mathematics, physical sciences, or engineering. Topics in the first two quarters include differentiation and integration of algebraic, exponential, logrithmic, and trigonometric functions, calculus of three dimensions, and applications. The third quarter is an introduction to differential equations, including linear and first and second order differential equations and applications. Lect. 3 hrs. per wk.

MATH 274 Applied Mathematics (4 cr.)
Prerequisite or corequisite: MATH 243 or division approval. Topics include power series, Laplace transform, partial differential equations, Legendre polynomials, and Fourier series. Lect. 4 hrs. per wk.

MATH 298 Seminar and Project (1-5 cr.)
(see page 91)

MATH 299 Supervised Study (1-5 cr.)
(see page 91)

MECHANICAL ENGINEERING

MECH 116-117 Numerical Control Programming I-II (4 cr.) (4 cr.)
A study dealing with the newer concepts of work handling and automatic machining processes. New techniques in metal forming and machine processes; analysis of electrosonic machining, electrolytic metal removal, numerical controls and simplified building block numerical control system. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 118 Tool Design (3 cr.)
A basic course in design and layout of cutting tools, stamping tools, punches, gauges, dies, blanking and forming tools, notching tools, progressive dies, embossing dies, instruction in use and application of these tools. Lect. 1 hr., Lab. 5 hrs., Total 6 hrs. per wk.

MECH 119 Jig and Fixture Design (3 cr.)
Fundamentals of the construction and design of various types of jigs and fixtures including milling, reaming, tapping, and drilling fixtures. Preparation of complete working drawings from layouts, for interchangeable manufacture: computation of fits, limit dimensions, tolerances, tool drawing principles and methods, fundamentals of cutting tools and gauges. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MECH 131 Machine Laboratory I (2 cr.)
Fundamental machine operations of drilling, reaming, turning between centers, chuck work, thread chasing shaper, layout, finishing, cutting speeds, tool care, tool grinding, surface grinder, milling machine operations and tools. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

MECH 132 Machine Laboratory II (2 cr.)
A continuation of Machine Lab I with greater emphasis on practical and industrial applications and setup will be included: inspection tools, gauges, tapers, gear cutting, square threads and fits will also be included. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

MECH 133 Machine Laboratory III (2 cr.)
Continued study in which the student will combine the knowledge and skills of the machining, tool, jig and machine design courses to build a simple machine and make the necessary tools for fabrication. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

MECH 141 Materials Laboratory I (3 cr.)
Metallurgy, heat treating, tempering, hardening, statics and welding. Testing materials and analysis of effects of industrial processes on materials with emphasis on machine parts. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MECH 142 Materials Laboratory II (3 cr.)
Prerequisite MECH 141. Dynamics including treatment of force, moments, and vectors with emphasis on machine parts. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

MECH 187 Introduction to Instrumentation (4 cr.)
Broad introduction to use of industrial electromechanical equipment. Provides an understanding of the methods, techniques, and skills required for installation, services and operation of a variety of industrial control systems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 197 Cooperative Education (1-5 cr.)
(see page 91)

MECH 198 Seminar and Project (1-5 cr.)
(see page 91)

MECH 215 Advance Jig & Fixture Design I (3 cr.)
Corequisite ENGR 152 or MECH 144. Application of the principles, practices, tools and commercial standards of jig and fixture design. Individual project and design work with emphasis on problem-solving and independent design. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MECH 237-238 Machine Design I-II (4 cr.) (4 cr.)
The analytical design of bearings, clutches, coupling, brakes, springs, gearing systems, and power shafting. Emphasis on methods of constructing machine parts and specifications of materials and manufacturing processes. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 246 Metallurgy I (4 cr.)
Prerequisite INDT 112. Fundamentals of metallurgy, grain size, effect on carbon content, and harness testing devices. Different alloys will be tested to determine the effect of heat treatment. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 247 Metallurgy II (4 cr.)
Prerequisite MECH 246. The fundamentals of physical metallurgy, of ferrous and nonferrous alloys, including crystal structure, phase diagrams, coiling curves, solid solutions, eutectic diagrams, grain characteristics, and the application of these to heat treating alloy metals. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 264 Thermodynamics I (4 cr.)
Prerequisite MATH 122 or equivalent. Characteristics of gases: applied study of steam cycles and combustion processes. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 265 Thermodynamics II (4 cr.)
Prerequisite MECH 264. Advanced thermodynamics with emphasis on applications relating to internal combustion engines and gas turbines. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MECH 286 Precision Measurements (3 cr.)
A study of the various precision measuring instruments and their uses in modern industry. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MECH 297 Cooperative Education (1-5 cr.)
(see page 91)

MECH 298 Seminar and Project (1-5 cr.)
(see page 91)

MEDICAL LABORATORY

MDLB 100 Introduction to Medical Laboratory Technology (3 cr.)
Designed to orient the student to the medical laboratory by introducing the basic principles, techniques and vocabulary applicable to all phases of medical laboratory technology. It is principally a laboratory practicum taught in the hospital laboratories and includes venipuncture, specimen preparation, laboratory safety, laboratory glassware, laboratory and hospital organization and professional relationships. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MDLB 116 Introduction to the Clinical Laboratory (4 cr.)
Prerequisite MDLB 100. Introduction to the techniques and methods of venipuncture and urinalysis. Students will spend 6 hours a week in the clinical labs performing venipuncture and urinalysis techniques under the supervision of the lab staff. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

MDLB 124 Clinical Hematology I (3 cr.)
The study of various blood components. The student will learn how to obtain blood, methods of examination such as measuring hemoglobin, volume of blood, and how to do white blood count, red blood count, and platelet count. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MDLB 126 Principles of Hematology (4 cr.)
Prerequisite MDLB 110 or equivalent. The theory underlying procedures performed in the hematology laboratory and the relationship between these procedures and the diagnosis of disease. Laboratory instruction will include methods of examination including complete blood counts, platelet counts, sedimentation rates, miscellaneous hematology tests and basic coagulation. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MDLB 190 Coordinated Practice (1-5 cr.)
(see page 91)

MDLB 225 Clinical Hematology II (7 cr.)
Prerequisite MDLB 124. Advanced course in the study of blood. Includes coagulation studies, blood formation, abnormalities, and changes seen in various diseases. Lect. 3 hrs., Lab. 12 hrs., Total 15 hrs. per wk.

MDLB 250 Principles of Blood Banking and Serology (4 cr.)
Prerequisite MDLB 100 or equivalent. The principles and theories of antigen-antibody reactions as related to blood grouping, cross match procedures and diagnostic serology procedures. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs.

MDLB 259 Diagnostic Microbiology (4 cr.)
Prerequisite BIOL 176 or equivalent. Principles of medical microbiology, including theories of handling and identification of pathogenic species of bacteria. Introduction to medical parasitology, mycology, and virology including identification of those species infecting humans. Lect. 4 hrs. per wk.

MDLB 264-265 Clinical Chemistry I-II (5 cr.) (8 cr.)
Prerequisite CHEM 103. Instruction and practice in methods of performing biochemical analysis on biological fluids and clinical specimens. Students are supervised in developing good laboratory techniques and in recognizing technical problems. Lect. 4-3 hrs., Lab. 3-15 hrs., Total 7-18 hrs. per wk.

MDLB 277 Clinical Microbiology (variable cr.)
Prerequisite BIOL 176 or equivalent. Techniques, methods and procedures used in Clinical microbiology, including bacteriology, parasitology and mycology. Emphasis on aseptic technique and identification of microorganisms affecting humans. Lab. variable hrs., min. 18 hrs. per wk.

MDLB 287 Clinical Blood Banking and Serology (7 cr.)
Prerequisite MDLB 250. Techniques, methods and procedures used in Clinical Blood Banking and Serology, including blood grouping, compatibility testing and diagnostic serology procedures. Lect. 2 hrs., Lab. 15 hrs., Total 17 hrs. per wk.

MDLB 290 Coordinated Practice (1-5 cr.)
(see page 91)

MDLB 298 Seminar and Project (1-5 cr.)
(see page 91)

MEDICAL RECORDS

MDRS 100 Medical Report Transcription (3 cr.)
Prerequisites HLTH 120 or 124 and ability to type 40 words per minute. The operation and care of dictating and transcribing machines: development of skill in the transcription and preparation of reports for the medical record. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MDRS 111-112 Medical Record Science I-II (4 cr.) (4 cr.)
Provides an understanding of the routine procedures necessary for adequate maintenance and preservation of medical records. Includes methods of analyzing, coding, indexing, and recording of statistical information, preparation of medical abstracts and insurance reports: legal aspects of medical records; administrative duties of the medical record technician; standards of hospital accreditation; and the role of electronic data processing procedures in the storage and retrieval of medical records. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MDRS 190 Coordinated Practice (1-5 cr.)
(see page 91)

MDRS 213-214 Medical Record Science III-IV (4 cr.) (4 cr.)
A continuation of MDRS 111-112. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

MDRS 290 Coordinated Practice (1-5 cr.)
(see page 91)

MDRS 298 Seminar and Project (1-5 cr.)
(see page 91)

MENTAL HEALTH

MENT 104-105 Introduction to Mental Health I-II (3 cr.) (3 cr.)
An examination of the concepts of mental health and mental illness. A study of the basic factors involved in any behavior and the quantitative relationship of mental health to mental illness. Laboratory includes observation and practice in various helping agencies. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MENT 110 Introduction to Abnormal Psychology (3 cr.)
An introductory study of the symptoms, causes and treatment of mental deficiency, neurosis, psychosis and character disorders, with specific relationship to the work of the mental health technologist. Lect. 3 hrs. per wk.

MENT 116 Activities Therapies (3 cr.)
Prerequisite MENT 104. The use of recreation, art crafts and music as therapeutic tools with the emotionally disturbed and mentally retarded. Planning social programs and special events for the needs of the individual and consistent with his overall treatment plan and/or social goals, current laws affecting activities, use of volunteers and use and care for audio-visual media. Laboratory will include participation in games, crafts, and other activities that could be used with various age groups and persons presenting particular problems. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

MENT 221-222-223 Mental Health I-II-III (3 cr.) (3 cr.) (3 cr.)
Principles and methods of interviewing, observing, recording, summarizing, and communicating human reactions (including both verbal and non-verbal communication) and the underlying rationale for various methods. Includes a study of psycho-therapy, group skills (group dynamics, role playing, leadership of group activities, other teaching skills), behavioral modification and related therapies, use of milieu, family therapies, hospital treatment, drug therapies, community resources, mental health professions, coordination of treatment program and participation in development of treatment programs. Special emphasis is placed on therapeutic use of every day experiences in development of therapeutic relationships. Lect. 3 hrs. per wk.

MENT 230 Sociology of Mental Health (3 cr.)
The study of mental disorders as social phenomena. Emphasis on the social personality and those social influences that disrupt or thwart the individual's activities and relationships and contribute to instability and mental disorders. Social definitions of mental illness and deviant behaviors, the social aspects of preventing mental disorders, of rehabilitating disordered persons, and of treating and caring for the mentally ill. Lect. 3 hrs. per wk.

MUSIC

MUSC 08 Fundamentals of Music (3 cr.)
Introduction to music theory designed to teach the beginner to read, write and understand the symbols of music notation. The approach is equally suited to those with no prior training in music as well as those who have learned to sing or play without training in fundamentals. A creative approach in music reading and listening to develop performance skills and proficiency in the language of music as well as in the assimilation of factual information. Students may re-register for the course in subsequent quarters as necessary until the course objectives are completed. Lect. 3 hrs. per wk.

MUSC 109 Music for Children (3 cr.)
A study of the selection and use of music for children's activities. Music for singing, rhythm, and movements. Use of the keyboard and autoharp. Emphasis on pre-school through elementary grades. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

MUSC 111-112-113 Music Theory I-II-III (4 cr.) (4 cr.) (4 cr.)
Elements of musical notation. Structure of scales, intervals, triads and chords. Development of ability to sing at sight and write from dictation melodies in all keys, clefs, and meters. Beginning analysis of the Bach chorale style and construction of cadential phrases in that style. Similar experience at the keyboard. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

MUSC 116 Comprehensive Musicianship (4 cr.)
Elements of musical notation including groupings and divisions of beats, scales, intervals, clefs, and performance indications. The course will also cover fundamentals of conducting, beat patterns, cues, upbeats, and fermatas. Transposing instruments will also be covered as will some problems common to both instrumental and vocal programs. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

MUSC 121-122-123 Music Appreciation I-II-III (3 cr.) (3 cr.) (3 cr.)
This course aims to increase the variety and depth of the student's interest in music and related cultural activities. Emphasis is upon the relation of music as an art to our daily lives and to society, to promote an understanding of the spirit of the art which will lead to the emotional and aesthetic development of the individual, and enable him to enjoy intelligent listening. Lect. 3 hrs. per wk.

MUSC 124-125 American Music I-II (3 cr.) (3 cr.)
The development of music in America from the Pilgrims to the present, in the light of the philosophical, political, geographical, and sociological developments of the country. Lect. 3 hrs. per wk.

MUSC 128 Folk Music (3 cr.)
An introductory survey study of traditional, Appalachian, and contemporary folk songs, instruments, and performers in American culture. No previous knowledge of music is required. Lect. 3 hrs. per wk.

MUSC 131-132-133 Class Voice I-II-III (2 cr.) (2 cr.) (2 cr.)
An introduction to the many aspects of a singer from the physical act through the aesthetic experience. The course is designed for the average singer who desires vocal improvement and the voice major as an addition to and extension of skills and knowledge necessary for the artistic development. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

MUSC 137 Applied Music-Voice (1-2 cr.)
Singing, proper breath control, diction and development of tone. Standard vocal repertoire will be studied. Departmental permission required. One-two half-hour lessons per week, 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 138 Chorus (1 cr.)
Courses in Ensemble consist of performance from the standard repertories including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 139 Small Vocal Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 141-142-143 Class Piano I-II-III (2 cr.) (2 cr.) (2 cr.)
Instruction in keyboard fundamentals, standard repertoire designed to give students the necessary proficiency to meet the basic keyboard requirement of a non-piano major in music, and for the student who desires improvement in keyboard technique. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

MUSC 147 Applied Music-Keyboard (1-2 cr.)
Instruction in piano, organ or harpsichord. Standard repertoire will be studied. Departmental permission required. One-two half-hour sessions per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 148 Orchestra (1 cr.)
Courses in Ensemble consist of performance from the standard repertories including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 149 Band (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 157 Applied Music Woodwinds (1-2 cr.)
Instruction in fundamentals of the woodwind instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $16.00 per half-hour.)

MUSC 159 Woodwind Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 167 Applied Music-Strings (1-2 cr.)
Instruction in fundamentals of the string instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week, 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 168 Guitar Theory and Practice (3 cr.)
A study of the fundamentals of sound production, music theory, and harmony as it applies to guitar. Building proficiency in both the techniques of playing the guitar and in the application of music fundamentals to these techniques. Exposure to different types of guitars and related instruments. Music as entertainment and as a communications skill. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

MUSC 169 String Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 177 Applied Music-Brass (1-2 cr.)
Instruction in fundamentals of the brass instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 179 Brass Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 187 Applied Music-Percussion (1-2 cr.)
Instruction in fundamentals of percussion instruments. Standard repertoire will be studied. Departmental permission required. One-two half-hour lessons per week. 4-8 hours practice (laboratory) required. (Estimated cost $6.00 per half-hour.)

MUSC 189 Percussion Ensemble (1 cr.)
Courses in Ensemble consist of performance from the standard repertoires including study of ensemble techniques and interpretation. Departmental permission required. May be repeated for credit. Lab. 3 hrs. per wk.

MUSC 198 Seminar and Project (1-5 cr.)
Prerequisite permission of instructor. (see page 91)

MUSC 199 Supervised Study (1-5 cr.)
Preparation of concert material for recital, supervised by the instructor. (see page 91)

MUSC 211-212-213 Advanced Music Theory I-II-III (4 cr.) (4 cr.) (4 cr.)
Continuation of MUSC 111-112-113. Development of facility in the analysis and usage of diatonic and chromatic harmonies. Continued study in analysis of Bach style, sight-singing, ear-training, and keyboard harmony. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

MUSC 214-215 Composition I-II (2 cr.) (2 cr.)
Prerequisite MUSC 111-112-113 or departmental permission. Individually supervised practice in writing short compositions in specified small forms. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

MUSC 220 The History of Jazz (3 cr.)
A study of the underlying elements of jazz concentrating on its cultural and historical development from its earliest stages to the present. Illustrated by musical examples through recordings and other audio visual devices. No previous knowledge of music is required. Lect. 3 hrs. per wk.

MUSC 221-222-223 History of Music I-II-III (3 cr.) (3 cr.) (3 cr.)
Primarily for music majors. A chronological study of music styles from antiquity to the present time. Relationship of the historical development of music to parallel movements in art, drama, and literature. Development of techniques for listening analytically and critically to Music. I, Music to 1600. II, 1600 to 1820. III, 1820 to present. Lect. 3 hrs. per wk.

MUSC 224-225 The History of Opera I-II (3 cr.) (3 cr.)
Development of operatic style through the study of representative works from 1600 to present. Lect. 3 hrs. per wk.

MUSC 237 Advanced Applied Music-Voice (1-2 cr.)
A continuation of MUSC 137.

MUSC 238 Chorus (1 cr.)
A continuation of MUSC 138.

MUSC 247 Advanced Applied Music Keyboard (1-2 cr.)
A continuation of MUSC 147. (Estimated cost $6.00 per half-hour.)

MUSC 248 Orchestra (1 cr.)
A continuation of MUSC 148. (Lab. 3 hrs. per wk.)

MUSC 249 Band (1 cr.)
A continuation of MUSC 149. (Lab. 3 hrs. per wk.)

MUSC 257 Advanced Applied Music Woodwinds (1-2 cr.)
A continuation of MUSC 157. (Estimated cost $6.00 per half-hour.)

MUSC 267 Advanced Applied Music Strings (1-2 cr.)
A continuation of MUSC 167. (Estimated cost $6.00 per half-hour.)

MUSC 269 String Ensemble (1 cr.)
A continuation of MUSC 169

MUSC 277 Advanced Applied Music-Brass (1-2 cr.)
A continuation of MUSC 177. (Estimated cost $6.00 per half-hour.)

MUSC 279 Brass Ensemble (1 cr.)
A continuation of MUSC 179.

MUSC 287 Advanced Applied Music Percussion (1-2 cr.)
A continuation of MUSC 187. (Estimated cost $6.00 per half-hour.)

MUSC 289 Percussion Ensemble (1 cr.)
A continuation of MUSC 189.

MUSC 296 Recreation Music (1 cr.)
The role and integration of musical activities in recreation and park programs; singing, instruments, rhythm and dance. Introduction to leadership skills, utilization and resource materials. Lab. 3 hrs. per wk.

NATURAL SCIENCE

NASC 100 Survey of Science (4 cr.)
A general survey course designed to familiarize the student with the basic principles of biological and physical sciences. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

NASC 111-112-113 Health Science I-II-III (4 cr.) (4 cr.) (4 cr.)
Human anatomy and physiology, microbiology, pathology and bacteriology; study of organ tissues, body systems and functions, chemistry as it relates to physiology, principles of physics as applied to health science. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

NASC 121-122-123 Natural Sciences I-II-III (4 cr.) (4 cr.) (4 cr.)
This is a multidisciplinary course primarily for non-science majors. The course integrates the main fields of science, and emphasizes the motivations of the scientific disciplines and how these interact. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

NASC 130 Body Structure and Function (3 cr.)
A survey of the structure and function of the human body. This course is designed for non-health or non-science majors. Lect. 3 hrs. per wk.

NASC 141-142-143 Fundamental Sciences for Respiratory Therapy I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite admission to program. Focus upon the major fields of scientific study; inorganic, organic and physiological chemistry, physics of gases, fluids, and electricity and laboratory mathematics. Course integrates the scientific disciplines as they relate to respiratory therapy. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

NASC 154-155 Astronomy I-II (3 cr.) (3 cr.)
The history of astronomy and the development of astronomical thought leading to the birth of modern astronomy and its most recent developments. Particular stress will be placed on astronomical instruments and measuring techniques, along with an examination of the solar system with emphasis on the earth, moon and adjacent planets, the Milky Way galaxy, and extra-galactic objects. Lect. 3-2 hrs., Lab. 0-2 hrs., Total 3-4 hrs. per wk.

NURSING

NURS 121 Fundamentals of Nursing I (5 cr.)
Knowledge of nursing principles and development of Nursing skills for the psych-bio-social needs of individuals. Group and individual instructional approach. Supervised clinical laboratory experience in cooperating health agencies. Lect. 4 hrs., Lab. 3 hrs., Total 7 hrs. per wk.

NURS 122 Fundamentals of Nursing II (6 cr.)
Continuation of NURS 121. Lect. 4 hrs., Lab. 6 hrs., Total 10 hrs. per wk.

NURS 113 Fundamentals of Nursing III (8 cr.)
Continuation of NURS 122. Lect. 4 hrs., Lab. 12 hrs., Total 16 hrs. per wk.

NURS 221-222-223-224 Nursing in Major Health Problems I-II-III-IV (8 cr.) (8 cr.) (8 cr.) (8 cr.)
Prerequisites NURS 113 & NASC 113. Representative problems in nursing care of patients of all age groups with physiological processes and illnesses requiring medical, surgical, maternal-child, pediatric, and psychiatric care. Related clinical experience to further develop the knowledge and skills required to provide nursing care for each patient's needs. The scope, prevention, diagnosis, treatment, and control of major areas of illness in the United States. Lect. 4 hrs., Lab. 12 hrs., Total 16 hrs. per wk.

NURS 298 Seminar and Project (1-5 cr.)
(see page 91)

PHILOSOPHY AND RELIGION

PHIL 101-102-103 Introduction to Philosophy I-II-III (3 cr.) (3 cr.) (3 cr.)
An introductory study of some philosophical issues concerning the perception and belief of man in society. Lect. 3 hrs. per wk.

PHIL 104-105 Introduction to Philosophy I-II (5 cr.) (4 cr.)
An introductory study of some philosophical issues concerning the perception and belief of man in society. Lect. 5-4 hrs. per wk.

PHIL 110 Logic (3 cr.)
The study of logic as the scientific investigation of valid reasoning. Lect. 3 hrs. per wk.

PHIL 121 Logic (3 cr.)
Traditional Logic of Categorical Propositions, special emphasis on the more practical ways for mastering clear thinking (the proper use of terms, the principles of definition and classification). Lect. 3 hrs. per wk.

PHIL 122 Logic (3 cr.)
Modern Symbolic Logic, special emphasis on more practical value for a mastery of straight thinking (valid uses of deductive inferences, truth-functional analysis, and Quantificational arguments). Lect. 3 hrs. per wk.

PHIL 123 Logic (3 cr.)
Inductive Logic, special emphasis on practical insights into the patterns of proof in scientific and judicial processes (reasoning by analogy, empirical verification, causal connections, the nature of probability, statistical methods). Lect. 3 hrs. per wk.

PHIL 201-202-203 History of Western Philosophy I-II-III (3 cr.) (3 cr.) (3 cr.)
A historical survey of representative philosophers from the Pre-Socratics to the present. Introduces the student to the development of philosophical thought through selected readings of original works and appropriate critical materials. Lect. 3 hrs. per wk.

PHIL 210 Ethics (3 cr.)
Prerequisite PHIL 201 or 202. Systematic study of representative ethical systems as they apply to present day living. Lect. 3 hrs. per wk.

PHIL 216 Aesthetics (3 cr.)
An examination of a variety of attempts to define beauty and the norms of taste and criticism. Attention is given to problems specific to particular art forms as well as to the more general theories about the nature of art. Lect. 3 hrs. per wk.

PHIL 217 Life and Teachings of Jesus (3 cr.)
Study of the major themes in the teachings of Jesus of Nazareth as recorded in the Gospels, and examination of the events of his life in light of modern Biblical and historical scholarships. Consideration of the relation of Jesus' life and teachings to modern life; reading of the four Gospels, and of other ancient and modern source materials. Lect. 3 hrs. per wk.

PHIL 218 Current Problems and Issues in Christianity (3 cr.)
An examination of moral and theological problems which trouble Christian communities today, e.g. war and violence; personal faith and social action; Christianity and other religions, wealth, poverty, and material things; women in the church; abortion; work and play; revolution; community and individualism. Lect. 3 hrs. per wk.

PHIL 221 Literature of the Bible I (3 cr.)
A study of the literature of the Old Testament. Lect. 3 hrs. per wk.

PHIL 222 Literature of the Bible II (3 cr.)
A study of the literature of the New Testament. Lect. 3 hrs. per wk.

PHIL 231 Comparative Religion I (3 cr.)
A survey of the religions of India and East Asia-Hinduism, Buddhism, Confucianism, Taoism & Shinto. Lect. 3 hrs. per wk.

PHIL 232 Comparative Religion II (3 cr.)
A survey of the four great monotheistic religions—Zoroastrianism, Judaism, Islam and Christianity. Lect. 3 hrs. per wk.

PHIL 236 Old Testament Prophetic Literature (3 cr.)
Prerequisite PHIL 221. A study of the major and minor prophetic books of the Old Testament as literary works. The historical and social context in which they were written, their literary and theological purposes; and survey of the ways in which they have been interpreted from pre-Christian times to the present. Lect. 3 hrs. per wk.

PHIL 237 The Poetry and Wisdom Literature of the Old Testament (3 cr.)
Prerequisite PHIL 221. A study of the Poetry of the Old Testament as a part of the literary and religious heritage of Western Civilization. Four major types are considered: ancient heroic, secular, national, and individual religious poetry. The special poetic books called "Wisdom Literature" will be considered as a separate genre. Lect. 3 hrs. per wk.

PHIL 246 Christianity (3 cr.)
Its origins and historical development; its basic metaphysical and theological assumptions; its essential doctrines and their origins; and the present state of the church in the modern world. Lect. 3 hrs. per wk.

PHIL 271-272-273 Thanatology: Dimensions of Death and Dying (3 cr. ea.)
A survey of man's attempts to understand the meaning of death, and of his ways of handling its personal and social implications. Examination of dying and death from a variety of perspectives, including psychological, sociological, cultural, and religious views. Lect. 3 hrs. per wk.

PHIL 298 Seminar and Project (1-5 cr.)
(see page 91)

PHIL 299 Supervised Study (1-5 cr.)
(see page 91)

PHYSICAL EDUCATION

PHED 100 Fundamentals of Physical Activity (1 cr.)
The role of physical activity in daily living; methods of personal evaluation of physical fitness and performance, meaningful interpretations of such evaluations, and the design of activity programs and patterns. Lect. 1 hr., Lab. 1 hr., Total 2 hrs. per wk.

PHED 106 Physical Performance and Conditioning (1 cr.)
Principles underlying the development of performance and conditioning factors such as strength, balance, power, agility, cardiovascular function, coordination. Lect. 1 hr., Lab. 1 hr., Total 2 hrs. per wk.

PHED 107 Movement Fundamentals (1 cr.)
Mechanics of the movement process related to efficient and effective physical performance. Movement patterns correlated to human anatomical and physiological design and properties, the processes of motor learning and motor behavior, and the principles of motion with application to human movement and physical activity. Lect. 1 hr., Lab. 1 hr., Total 2 hrs. per wk.

PHED 108 Physical Activities for Children (3 cr.)
Methods and materials for teaching simple rhythm, recreational games, singing games and other movement experiences. Emphasis on the pre-school through elementary ages. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 109 Physical Activities for Pre-Adolescents & Adolescents (3 cr.)
An understanding of the physical development and physical capabilities of pre-adolescents and adolescents. The methods and materials for teaching are group games, individual and team sports skills, and other movement experiences. Emphasis on the role of the aide in supervising activities, on the social adjustments, safety precautions, and relationship of physical development to total development of both age groups. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. a wk. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 110 Angling and Casting (1 cr.)
The fundamentals of sport fishing, spinning, spin casting, bait casting and fly casting with the related knowledge of conservation and safety. Lab. 2 hrs. per wk.

PHED 111 Archery (1 cr.)
The fundamentals of target archery and/or field archery; equipment, safety, and conservation. Lab. 2 hrs. per wk.

PHED 112 Camping (1 cr.)
Self-maintenance and survival out-of-doors; food selection, and maintenance; packing, preparation, preservation, and storage; shelter selection, construction, and maintenance; nature, conservation, camping facilities and equipment; application to varying age group; personal and group safety. Lab. 2 hrs. per wk.

PHED 113 Boating (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals used in propelling and handling canoes, row boats, and other small craft; descriptive and functional terminology, construction and care of equipment, conservation, and safety. Lab. 2 hrs. per wk.

PHED 114 Equitation (1 cr.)
Riding seats, and preparation for riding; care and grooming of a horse; selection, use and care of equipment, and safety. Lab. 2 hrs. per wk.

PHED 115 Ice Skating (1 cr.)
The fundamentals of ice skating; figures, equipment, types of skating, and safety. Lab. 2 hrs. per wk. (Estimated cost $15.00.)

PHED 117 Shooting and Firearm Safety (1 cr.)
Shooting and firearm safety; arms, selection and care of equipment, forms of the sport of shooting; personal safety and survival in situations associated with hunting and sport shooting. Lab. 2 hrs. per wk.

PHED 118 Snow Skiing (1 cr.)
Snow skiing; equipment and safety. Lab. 2 hrs. per wk.

PHED 120 Game and Upland Bird Hunting (1 cr.)
A course designed to introduce fundamental techniques of game and upland hunting in Virginia; hunting laws and regulations; equipment and personal conduct. Lab. 2 hrs. per wk.

PHED 122 Fly Fishing (1 cr.)
An introduction to the fundamental concepts, skills, equipment and strategies related to modern fly fishing. Lab. 2 hrs. per wk.

PHED 123 Whitewater Canoeing (1 cr.)
An introduction to the history, techniques, and equipment related to whitewater canoeing with field experiences selected according to progress and ability. Lab. 2 hrs. per wk.

PHED 124-125 Outdoor Environmental and Recreational Studies I-II (3 cr.) (3 cr.)
The ethical role of the camper is emphasized in terms of practical conservation and ecology. This includes field experience involving the following: backpacking, general mountaineering, orienteering, flat water canoeing, climbing and rappelling, basic first aid techniques, natural floods, and natural habitats. Offered during one calendar week or three weekends for approximately 140 contact hours each.

PHED 127 Orienteering (1 cr.)
A brief history of the sport, required equipment, map reading, compass use, orienteering techniques, and types of orienteering meets. Lab. 2 hrs. per wk.

PHED 128-129 Hiking and Backpacking I-II (1 cr.) (1 cr.)
Preparation for and planning a backpacking trip; equipment and clothing selection; personal and group safety; includes actual field practice and experience. Lect. 2 hrs. per wk.

PHED 130 Badminton (1 cr.)
Badminton; equipment, strategy for play, and rules. Lab. 2 hrs. per wk.

PHED 131 Bowling (1 cr.)
A course designed to present the fundamentals of bowling; equipment, rules and personal conduct. Lab. 2 hrs. per wk. (Estimated cost $11.00.)

PHED 133 Golf (1 cr.)
The fundamentals of golf; equipment, rules, strategy for play, and personal conduct. Lab. 2 hrs. per wk. (Estimated cost $10.00.)

PHED 134 Handball (1 cr.)
The fundamentals of handball, types of games, rules, equipment, and strategy for team and individual play. Lab. 2 hrs. per wk. (Estimated cost $15.00.)

PHED 135 Tennis (1 cr.)
The fundamentals of tennis; rules, strategy for team and individual play, and personal dress and conduct. Lab. 2 hrs. per wk.

PHED 137 Fencing (1 cr.)
Study and practice in fundamentals of foil fencing. Lab. 2 hrs. per wk.

PHED 138 Self-Defense (1 cr.)
An introduction to the history, techniques and movements associated with the martial arts of self-defense. Lab. 2 hrs. per wk.

PHED 139 Intermediate Tennis (1 cr.)
Prerequisite beginning tennis. Emphasis on improvement of basic stroke production; development of wide variety of strokes; improving strategy for singles and doubles play. Lab. 2 hrs. per wk.

PHED 140 Recreational Sports (1 cr.)
Designed to provide students with the opportunity to participate in a variety of recreational sports of their choice. Lab. 2 hrs. per wk.

PHED 141 Weight Training (1 cr.)
Introduction to basic techniques and practices; equipment; safety; rules for both Olympic Lifts and Power-lifting. Lab. 2 hrs. per wk.

PHED 149 Racketball (1 cr.)
The fundamentals of racketball, types of games, rules, equipment, and strategy for team and individual play. Designed to develop an appreciation of the values of the game as a recreational sport. Lab. 2 hrs. per wk.

PHED 150 Diving (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals of diving; performance and personal safety. Lab. 2 hrs. per wk. (Estimated cost $18.00.)

PHED 151 Senior Life Saving (1 cr.)
Prerequisite appropriate skill in swimming. The fundamentals of rescue and survival in the water; first aid safety. Preparation for the examination for the Red Cross Senior Life Saving Certificate. Lab. 2 hrs. per wk. (Estimated cost $18.00.)

PHED 152 Skin and Scuba Diving (1 cr.)
The fundamentals of swimming; personal performance and safety. Lab. 2 hrs. per wk. (Estimated cost $65.00.)

PHED 153 Swimming (1 cr.)
The fundamentals of swimming; personal performance and safety. Lab. 2 hrs. per wk. (Estimated cost $18.00.)

PHED 157 Intermediate Swimming (1 cr.)
Continued development of swimming skills and endurance for students who have mastered the fundamentals of swimming. Lab. 2 hrs. per wk.

PHED 160 Contemporary Dance (1 cr.)
The fundamentals and techniques employed in dance as a creative art form; choreography and performance. Lab. 2 hrs. per wk.

PHED 161 Folk Dance (1 cr.)
The fundamental step patterns, rhythmic patterns, positions, and formations of the traditional and ethnic group and individual dances emphasizing those of foreign origin; dance forms, their cultural environment, social performance, and significance. Lab. 2 hrs. per wk.

PHED 163 Social Dance (1 cr.)
The fundamental step patterns, rhythmic patterns and positions of the social or ballroom dance forms; dance as a significant form of social behavior. Lab. 2 hrs. per wk.

PHED 164 Square Dance (1 cr.)
The fundamental step and movement patterns, rhythmic patterns, and formations of the American square dance; historical significance and development. Lab. 2 hrs. per wk.

PHED 167-168-169 Dance and Movement I-II-III (1 cr.) (1 cr.) (1 cr.)
Practical training in mime, pantomime, fencing, and elementary dance which can be transferred to the stage in production. Lab. 2 hrs. per wk.

PHED 170 Basketball (1 cr.)
Basketball; proper skills, techniques, teamwork and strategy in play, equipment, rules and safety. Lab. 2 hrs. per wk.

PHED 172 Soccer (1 cr.)
Soccer, proper skills, techniques, team play and strategy in play, rules, equipment and safety. Lab. 2 hrs. per wk.

PHED 173 Softball (1 cr.)
Softball; proper skills, techniques, teamwork and strategy in play; rules, equipment and safety. Lab. 2 hrs. per wk.

PHED 174 Volleyball (1 cr.)
Volley; proper skills, techniques, team play, and strategy in play; rules, equipment and safety. Lab. 2 hrs. per wk.

PHED 181 Self-Defense—Tae Kwon Do I (1 cr.)
Tae Kwon Do is an ancient Korean art of self-defense that literally means the "art of hand and foot fighting." The primary behavioral objective is to develop a fundamental level of understanding and skill in order to progress from a white to a yellow belt. Lab. 2 hrs. per wk.

PHED 182 Self-Defense—Tae Kwon Do II (1 cr.)
Prerequisite PHED 181. Tae Kwon Do is an ancient Korean art of self-defense that literally means the "art of hand and foot fighting." The primary behavioral objective is to develop a fundamental level of understanding and skill in order to progress from a yellow to green tipped belt. Lab. 2 hrs. per wk.

PHED 183 Self-Defense—Tae Kwon Do III (1 cr.)
Prerequisite PHED 182. Tae Kwon Do is an ancient Korean art of self-defense that literally means the "art of hand and foot fighting." The primary behavioral objective is to develop a fundamental level of understanding and skill in order to progress from green tips to green belt. Lab. 2 hrs. per wk.

PHED 200 An Introduction to Health, Physical Education and Recreation (2 cr.)
An introduction to the terms, aims, objectives, teacher preparation programs, career opportunities, professional organizations, and problems in the fields of health, physical education, and recreation. Primarily for prospective majors in the field. Lect. 2 hrs. per wk. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 201 Body Dynamics (2 cr.)
An understanding and performance of skilled movements in various activities. Essential factors effecting the human body in skilled movement and performance. Lect. 2 hrs. per wk. This course cannot be taken to satisfy the physical education requirement for graduation.

PHED 204 Officiating at Games (3 cr.)
Application of rules and techniques of officiating team sports with emphasis on basketball, volleyball, and softball; includes practical experience in the intramural program. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

PHYSICAL THERAPY

PSTH 100 Introduction to Physical Therapy Assisting (2 cr.)
Designed to introduce the health technology student to the field of physical therapy. Ethics, legal implications, job descriptions, and methods of health care delivery are discussed. Emphasis is on the team approach to patient care and the role of the physical therapist assistant within the therapeutic team. Lect. 2 hrs. per wk.

PSTH 111 Therapeutic Skills I (4 cr.)
Prerequisite or concurrent enrollment, PSTH 100. The development of elementary therapeutic skills for the physical therapist assistant. Basic patient care, superficial heat and cold, principles of therapeutic exercise, and ambulation with aids are presented and practiced. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

PSTH 112 Therapeutic Skills II (4 cr.)
Prerequisite PSTH 111 and PSTH 100. The further development of therapeutic skills for the physical therapist assistant. Use of specialized equipment is emphasized with practice arranged in selected health agencies. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

PSTH 113 Therapeutic Skills III (6 cr.)
Prerequisite PSTH 112. A continuation of therapeutic skills for the physical therapist assistant. Massage and treatment techniques for respiratory and cardiac problems are presented. Lect. 3 hrs., Lab. 9 hrs., Total 12 hrs. per wk.

PSTH 120 Medical Reporting (2 cr.)
Prerequisite PSTH 112. Principles of medical reporting, including ability to abstract pertinent information from actual medical records. The writing of patient progress notes in standardized formats and medical terminology is emphasized. Lect. 2 hrs. per wk.

PSTH 190 Coordinated Practice (4 cr.)
Prerequisite PSTH 111 and PSTH 100. Supervised practice in selected health agencies coordinated by the College. Practice 10 hrs., Seminar 2 hrs., Total 12 hrs. per wk. May be repeated for credit.

PSTH 210 Psychological Aspects of Therapy (3 cr.)
Prerequisite PSTH 113, Concurrent enrollment in PSTH 290. A study of the psychological reactions and behavioral changes seen in patients and the techniques of effective interaction between the allied health worker and the patient. Reports based on observation and analysis of patient behavior and relationships in actual clinical practice are required. Lect. 3 hrs. per wk.

PSTH 211 Therapeutic Skills IV (6 cr.)
Prerequisites PSTH 113, PSTH 290, HLTH 150, NASC 113. A continuation of therapeutic skills for the physical therapist assistant. Rehabilitation programs for the permanently disabled are emphasized utilizing advanced exercise techniques, prosthetic and orthotic devices, and electrical stimulation. Lect. 3 hrs., Lab. 9 hrs., Total 12 hrs. per wk.

PSTH 220 Clinical Kinesiology (4 cr.)
Prerequisites NASC 113, PSTH 113, or divisional permission. A detailed study and analysis of muscle functions, biomechanics and human gait in normal individuals and selected disease processes. Application in kinesiological principles to therapeutic exercise is made in laboratory practice. Lect. 2 hrs., Lab. 6 hrs., Total 8 hrs. per wk.

PSTH 290 Coordinated Practice (5 cr.)
Prerequisites PSTH 113, PSTH 190, PSTH 120. Supervised practice in selected health agencies coordinated by the College. Practice 15 hrs., Seminar 2 hrs., Total 17 hrs. per wk. May be repeated for credit.

PSTH 298 Seminar and Project (1-5 cr.)
(see page 91)

PHYSICS

PHYS 111-112-113 Technical Physics I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite two units of high school mathematics or equivalent. Precision measurement, properties of matter, hydrostatics and hydraulics, force and motion, Newtonian mechanics, vectors and graphic solution, statics, dynamics, rotary motion, heat and thermodynamics, heat engines, sound acoustics; the theory of wave motion, light and optics, magnetism and electricity, DC and AC circuits and machines. An introduction to electronics and nuclear energy for industrial purposes. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

PHYS 114-115 Technical Physics I-II (6 cr.) (6 cr.)
Prerequisite two units of high school mathematics or equivalent. Precision measurement, properties of matter, hydrostatics and hydraulics, force and motion, Newtonian mechanics, vectors and graphic solutions, statics, dynamics, rotary motion, motion, light and optics, magnetism and electricity, DC and AC circuits and machines. An introduction to electronics and nuclear energy for industrial purposes. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

PHYS 198 Seminar and Project (1-5 cr.)
(see page 91)

PHYS 199 Supervised Study (1-5 cr.)
(see page 91)

PHYS 201-202-203 General College Physics I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite three units of high school mathematics or equivalent. General college physics for curricula not requiring calculus. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

PHYS 204-205 General College Physics I-II (6 cr.) (6 cr.)
Prerequisite three units of high school mathematics or equivalent. General college physics for curricula not requiring calculus. Lect. 5-4 hrs., Lab. 3-6 hrs., Total 8-10 hrs. per wk.

PHYS 221-222-223-224 General University Physics I-II-III-IV (4 cr.) (4 cr.) (4 cr.) (4 cr.)
Prerequisite MATH 143 or corequisite MATH 241 or equivalent. General University Physics designed for students in engineering, physics or mathematics. Includes mechanics, relativity, electro-magnetism, ray and wave optics, statistical quantum mechanics, solid state and nuclear physics. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

PHYS 298 Seminar and Project (1-5 cr.)
(see page 91)

PHYS 299 Supervised Study (1-5 cr.)
(see page 91)

PSYCHOLOGY

PSYC 110 Principles of Applied Psychology (3 cr.)
The general principles of perception, learning, and conscious and unconscious motivation which are operative in all practical applications of psychology to life and work. Lect. 3 hrs. per wk.

PSYC 116 The Psychology of Personal Adjustment (3 cr.)
Characteristics of mental health. Psychological principles applied to the development of a mature personality and to the problems of everyday life. Effective methods in study and work. Lect. 3 hrs. per wk.

PSYC 120 Experiences in Personal Growth (3 cr.)
An interdisciplinary approach designed to enable an individual to understand himself better in relation to his immediate environment, community and society. Stimulation, role playing, and other experiential techniques will be used to accomplish this objective. Some of the experiences will take place off campus. Approval of division is required for admission. Lect. 3 hrs. per wk.

PSYC 128 Human Relations (3 cr.)
The study of human personality and its reaction upon other personalities. The application of psychology to problems in industry and private life. Some introduction to such matters as selection, training and placement of employees. Lect. 3 hrs. per wk.

PSYC 129 Interpersonal Relationships (3 cr.)
The theory and practice of self-discovery working with self, group discovery and relationships. Focalizing on human needs and human problems with emphasis upon attitude, values, motivation, leadership, communications, and group living. Lect. 3 hrs. per wk.

PSYC 130 Child Growth and Development (3 cr.)
The development of the child from one stage of growth to the next, concentrating on the physical, intellectual, social and emotional factors in his personality. Recent studies in child development will be presented. The course is designed to provide a background for those students who intend to become nurses, teachers, or enter other occupations involving continuous work with children. Lect. 3 hrs. per wk.

PSYC 201-202-203 General Psychology I-II-III (3 cr.) (3 cr.) (3 cr.)
PSYC 201 is the prerequisite for either PSYC 202 or 203
The principles of behavior relating experimental data to practical problems: the measurement of ability, sensory and perceptive processes, organic basis of behavior, hereditary, maturation, learning and thinking, motivation, emotion, personality and social factors in behavior. Lect. 3 hrs. per wk.

PSYC 204-205 General Psychology I-II (5 cr.) (4 cr.)
The study of human behavior relating experimental data to practical problems: the measurement of ability, sensory and perceptive processes, organic basic behavior, heredity, maturation, learning and thinking, motivation, emotion, personality and social factors in behavior. Lect. 5-4 hrs. per wk.

PSYC 210 Social Psychology (3 cr.)
A study of the individual in social contexts, his social role and socialization process. Personal and social factors in perceptive attitudes toward individuals and groups: group structures and intergroup relations. Lect. 3 hrs. per wk.

PSYC 226 Psychological Aspects of Management (3 cr.)
Prerequisite PSYC 110. Psychological principles applied to business. Supervision, communication, employee relations, group dynamics, employee selection. Lect. 3 hrs. per wk.

PSYC 231-232-233 Human Growth and Development I-II-III (3 cr.) (3 cr.) (3 cr.)
The study and interpretation of human behavior through the life cycle. Concepts and principles describing the dynamics of human development and behavior and their relation to the work and purpose of the school. The scientific method, heredity, psychological development, perception, motivation, learning, emotions, cognitive processes, personality, frustration, intelligence, and mental processes. Lect. 3 hrs. per wk.

PSYC 247 Educational Psychology (3 cr.)
Prerequisite PSYC 202 or 130. Certain facets of human behavior and learning as they relate to the education processes. Motivation, intelligence, knowledge and their significance for achieving educational goals. Lect. 3 hrs. per wk.

PSYC 298 Seminar and Project (1-5 cr.)
Prerequisite division permission. (see page 91)

PSYC 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

PUBLIC SERVICE

PBSV 100 Introduction to Highway Transportation (4 cr.)
Nature and scope of the Highway Transportation System. Survey of the major functional areas of the highway transportation systems with emphasis on their interaction. Lect. 4 hrs. per wk.

PBSV 104 Highway Traffic Administration I (4 cr.)
Examination of United States transportation systems, emphasizing efficient, safe and rapid operation. Activities and agencies concerned with increasing efficiency. System's development components, social, economic and political impacts. Survey of present and future needs. Lect. 4 hrs. per wk.

PBSV 105 Highway Traffic Administration II (4 cr.)
Police and court traffic administration. Administration and maintenance of motor vehicle and driver records. Traffic direction and control, traffic accident investigation, and traffic law enforcement. Communication aspects of highway traffic administration. Highway traffic education programs and public information. Motor vehicle fleet safety programs. Utilizing traffic safety research. Lect. 4 hrs. per wk.

PBSV 108 Safety Principles in Motor Vehicle Transportation (3 cr.)
An investigation of the principles and practices which have a bearing on highway traffic safety and its attendant problems. Topics include: the role of driver education, effect of traffic density, traffic operations and control, influencing driver behavior, economics of highway safety, convenient highway transportation. Lect. 3 hrs. per wk.

PBSV 110 Introduction to Public Administration (3 cr.)
Principles and concepts underlying the field of public administration in federal, state, and local government. Includes the role of government in modern society; the relationship of administrative and policy processes; organizational structure and relationships; new and emerging organizational forms and functions of government. Lect. 3 hrs. per wk.

PBSV 116 Public Personnel Administration (3 cr.)
Human resource development; historical development of public personnel administration, recruitment, selection, training, classification, grievance procedures, and related processes of public personnel administration; new concepts in personnel administration; manpower programs; overview of labor relations in government employment. Lect. 3 hrs. per wk.

PBSV 117 Public Finance Administration (3 cr.)
Organization and functions of fiscal administration; financial planning and control; analysis of the budgeting process; budget preparation; revenue sources; intergovernmental financial relationship; debt management; data processing applications in fiscal administration; analysis of the fiscal process in various government agencies; purchasing; special assessments; capital improvement budgeting. Lect. 3 hrs. per wk.

PBSV 256 Interviewing Skills (3 cr.)
A study and analysis of the technique of interviewing. Includes the significance of representing a government or private agency, human relations, confidentiality, beginning the interview, interchange of information, handling complaints and criticism, ending the interview. Lect. 3 hrs. per wk.

PBSV 257 Group Leadership (3 cr.)
The dynamics of individual behavior and the group process. How individuals function as group members, role of the leader; encouraging participation and group action for achieving group goals. Lect. 3 hrs. per wk.

PBSV 258 Social Change Skills (3 cr.)
Institutions and why they change or fail to change. The differing strategies for effecting change. Examination of techniques employed by people attempting change. Lect. 3 hrs. per wk.

PBSV 259 Social Legislation (3 cr.)
An examination of current and prospective programs dealing with legislation relevant to community service. Covers Federal, State, and municipal programs; interrelationships among governmental agencies; authority and responsibility for administration. Lect. 3 hrs. per wk.

RECREATION AND PARKS

RCPK 100 Introduction to the Recreation and Parks Field (3 cr.)
Development of the recreation and parks movement. Theory of leisure and environmental awareness. The economic importance, type of areas and facilities. Career opportunities in public, private, and industrial agencies and institutions. Lect. 3 hrs. per wk.

RCPK 101 Recreation and Parks Management I (3 cr.)
Introduction to personnel management, supervision, planning and organization for the recreation and parks field. Community relations. Lect. 3 hrs. per wk.

RCPK 102 Recreation and Parks Management II (3 cr.)
Introduction to elements of fiscal planning and development, budget preparation, documentation and presentation of projects. Lect. 3 hrs. per wk.

RCPK 103 Recreation and Parks Management III (3 cr.)
Problems and practices in maintenance of buildings, areas and equipment. Tree pruning, safety and emergency procedures. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

RCPK 108 Recreation for Special Groups (3 cr.)
Equips students with the competencies needed to direct recreation activities for special groups such as mentally retarded, physically handicapped, and hospitalized. Leadership techniques for conducting social recreation, drama, music, and sports are emphasized. Lect. 3 hrs. per wk.

RCPK 110 Recreational Applied Arts Management (2 cr.)
Planning and practical application of the basic skills of arts and crafts for adoption in the community recreation field. An overview or survey course which includes practical field work in crafts as well as the ordering and issuing of materials for programs and program supervision. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

RCPK 116 Social Recreation Leadership (3 cr.)
The programs for recreation in the schools, home, church, youth groups, and other community organizations and institutions. Practical work in social and recreational activity leadership. Designed for those who may wish to engage or specialize in recreational leadership. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

RCPK 126 Natural Resources and the Urban Environment (2 cr.)
Introduction to the wise use of natural resources in the urban situation. History and philosophy of conservation methods and techniques. Utilization of park facilities and interpretative programs. Interpretative techniques, the web of life. Lect. 2 hrs. per wk.

RCPK 127 Park Planning (2 cr.)
Designed to give the student experience in park design and planning with emphasis on design characteristics and structures, and in working with consultants and contractors. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

RCPK 136 Program Planning Organization and Group Leadership (2 cr.)
Elements and principles of organizing, conducting, and evaluating various types of effective recreation programs for a variety of groups; playgrounds, recreation centers, parks, camps, and senior citizen groups. Lect. 2 hrs. per wk.

RCPK 137 Organization and Management of Recreational Sports Activities (3 cr.)
Officiating and instructional activities; aspects of recreational sports; game rules and administering of tournaments. Lect. 3 hrs. per wk.

RCPK 138 Fundamentals of Camp Management and Operation (3 cr.)
Principles of modern camping; sites, equipment, programming. Managerial responsibility and operation, maintenance, supervision and planning of private and public camp grounds, and day camps. Organization and supervision of recreation group camping and private camps for various ages or family groups. Includes field trips. Lect. 3 hrs. per wk.

RCPK 146 Community and Family Recreation (3 cr.)
Survey of problems, functions and methods of recreation services for the community. Interpretation and importance of community recreation. Family recreational activities. Programs and leadership; recreation services, standards, quality, coordination, and community organizations. Lect. 3 hrs. per wk.

RCPK 150 Survey of Private, Commercial and Industrial Recreation (3 cr.)
Designed to introduce the student to the specialized fields of Private, Commercial and Industrial Recreation. The course will emphasize career opportunities and specialized education needed to attain a position in this field. Lect. 3 hrs. per wk.

RCPK 160 The Arts in Recreation (1 cr.)
An introduction and survey of the cultural, creative and performing arts in recreation. Music, arts and crafts, drama, dance, and cultural programs will be surveyed as to the application and use in the field of recreation and parks. Lect. 1 hr., Lab. 1 hr., Total 2 hrs. per wk.

RCPK 190 Coordinated Internship (1-5 cr.)
(see page 91)

RCPK 197 Cooperative Education (1-5 cr.)
(see page 91)

RCPK 207 Recreational Drama (1 cr.)
Prepares recreation leaders to direct informal creative dramatics, chiefly for children. Includes improvisation, pantomime, storytelling, charades, dramatic games, and acting combined with other art forms. Lab. 2 hrs. per wk.

RCPK 224 Natural and Historical Interpretation in the Urban Environment I (2 cr.)
Designed to introduce and give the student experience in the development of interpretative materials and use of interpretative methods; includes use of Audio-Visual equipment, photography, lettering, native trail design. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

RCPK 225 Natural and Historical Interpretation in the Urban Environment II (2 cr.)
The theory of Interpretation as it applies to the Urban Environment. Discuss various approaches to the philosophy of interpretations and the natural environment. Practice in sensitation and acclimatizing. Lect. 2 hrs. per wk.

RCPK 290 Coordinated Internship (1-5 cr.)
(see page 91)

RCPK 297 Cooperative Education (1-5 cr.)
(see page 91)

RCPK 298 Seminar and Project (1-5 cr.)
(see page 91)

RCPK 299 Supervised Study (1-5 cr.)
(see page 91)

RECREATION VEHICLE

RVEH 116 Motorcycle Machine Laboratory (3 cr.)
The theory practice and use of machinery equipment used in reconditioning and repairing motorcycles. Special emphasis will be placed on measuring instruments, valve refinishing, cylinder and piston reconditioning, use of dial indicator, resurfacing and welding. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 120 Introduction to Motorcycle Mechanics (3 cr.)
The motorcycle, its systems, operating principles, problems and repair techniques. Introduction to tools, equipment, shop layout, general maintenance and diagnosis. Special emphasis is placed on shop safety and safe use of basic equipment. There is no prerequisite for this course. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 126 Motorcycle Fuel Systems (3 cr.)
Analysis of motorcycle fuel systems to include tanks, valves, filters and carburetors (slide type, diaphram, and conventional type) and fuel injection. Special emphasis will be placed on diagnosis and adjustment, especially jetting and needle positioning. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 127 Motorcycle Electrical Systems (3 cr.)
Electricity and magnetism symbols and circuitry as applies to the motorcycle electrical system. Includes storage batteries, generators, alternators, regulating systems, starters, lighting systems. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 156 Motorcycle Drive Trains (3 cr.)
The operation, design, construction and repair of power train components including primary drive systems (both gear and chain), clutches (wet, dry automatic and centrifugal), transmissions. Final drive systems (sprocket, chains, rings and pinion type). Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 176 Motorcycle Two-Stroke Engines (3 cr.)
Analysis of piston, cylinder, rods, crankshafts, bearings, cases, lubrication systems. Special emphasis will be placed on diagnosis and rebuilding techniques. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 177 Motorcycle Four-Stroke Engines (3 cr.)
Analysis of piston and cylinder conditions, intake and exhaust valve mechanisms, bearings, crankshafts, rods, lubrication systems, and cooling systems. Special emphasis will be placed on diagnosis and rebuilding techniques. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RVEH 198 Motorcycle Seminar and Project (1-5 cr.)
(see page 91)

RVEH 267 Motorcycle Suspensions (3 cr.)
Theoretical analysis, and practical service and repair of motorcycle frames, forms, wheels and brakes. Special emphasis will be placed on fork rebuilding, spoked wheel lacing and trueing, and brake repairing. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

RESPIRATORY THERAPY

RPTH 136 Fundamental Arts I (3 cr.)
Focus upon historical aspects leading to present status of modern day cardiorespiratory therapy. Also nursing arts relative to psychological, physical and special unit patient care and its interrelationship to therapy, general hospital safety. Lect. 3 hrs. per wk.

RPTH 144 Fundamental Theory and Procedures I (4 cr.)
Focus upon gas, aerosol, and humidification therapies emphasizing the techniques, skills and understanding necessary to properly and effectively administer these therapy methods. Focus also upon cleaning, maintenance, storage and safety aspects of equipment involved. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 145 Fundamental Theory and Procedures II (4 cr.)
Focus is upon artificial ventilation therapy-controlled and or assisted or intermittent. All basic types of ventilator/respirators emphasizing all techniques, skills and understanding necessary to properly and effectively administer these methods. Focus also upon cleaning, maintenance, storage and safety aspects of equipment involved. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 190 Coordinated Clinical Practice I (4 cr.)
(see page 91)

RPTH 231 Cardiopulmonary Science I (3 cr.)
Pharmacological basis of drugs used in cardiovascular and respiratory therapy. Focus upon theory, origin, and source of drugs; prescriptions, mathematics of dosages and solutions, action, influencing conditions, preparation, administration. Lect. 3 hrs. per wk.

RPTH 232 Cardiopulmonary Science II (4 cr.)
Focus upon anatomy and physiology as it relates to cardiovascular and respiratory systems. Basic normal and abnormal function and patterns of thorax and contents, basic embryology - comparing neonatal states to adult. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 233 Cardiopulmonary Science III (4 cr.)
Pathophysiology of Medical and Surgical diseases treatment. Emphasis upon therapy's relation to basic pathological processes of disease problems from standpoint of etiological, symptomatic, diagnostic, therapeutic, and prognostic point of view. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 236 Fundamental Arts II (3 cr.)
Focus upon administration, economics, planning and development of technical department management. Also ethics, professional behavior and responsibility, and legal considerations relative to therapy. Lect. 3 hrs. per wk.

RPTH 241 Fundamental Theory and Procedures III (4 cr.)
Focus upon advanced techniques of ventilatory management, including respiratory monitoring, patient care plans, integration of team care. Emphasis on acute, intensive care patient cardio-respiratory problems. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 242 Fundamental Theory and Procedures IV (4 cr.)
Focus upon cardio-pulmonary resuscitation and airway management plus management of emergencies involving cardio-respiratory problems in both adults and infants. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 243 Fundamental Theory and Procedures V (4 cr.)
Focus upon pulmonary function testing and diagnostic, blood gas analysis and gas analysis emphasizing relation to physiological states and interpolation to patient care objectives. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

RPTH 290 Coordinated Clinical Practice (1-5 cr.)
(see page 91)

RPTH 298 Seminar and Project (1-5 cr.)
(see page 91)

SCIENCE TECHNOLOGY

SCTE 101-102-103 Science Technology Techniques I-II-III (3 cr.) (3 cr.) (3 cr.)
A modularized course in the study of techniques widely used in the scientific, technical occupations within the area. Modules will include: (1) recordkeeping, use of pH meter, colorimeter, solution preparation, care and cleaning of glassware, use of simple and analytical balances; (2) computations of laboratory data, microscopic techniques, titratron, pipetting, concepts of biochemistry; (3) bacterial culturing, media making, metric measurements, use of Spectronic 20, serial dilutions, slide specimen preparation. Lect 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SCTE 110 Careers in Science Technology (1 cr.)
Survey of career literature in science technology. Field trips to employers of science technology personnel to observe the responsibilities and opportunities of these occupations. Seminars to discuss and evaluate these experiences. Lab. 3 hrs. per wk.

SCTE 120 Fundamentals of Field Biology (4 cr.)
A field-oriented study of terrestrial and aquatic systems with emphasis on sampling techniques, vegetation analysis, animal populations and animal behavior. Course work will include field projects and optional weekend field trips. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.

SCTE 124-125 Applied Science Techniques I-II (3 cr.) (3 cr.)
Operating laboratory equipment, field settings, and experiences in an on-the-job setting. Modules, some prepared by personnel in the cooperating laboratories, will include air pollution measurements, water sampling, and animal care. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SCTE 204-205 Science Technology Techniques IV-V (3 cr.) (3 cr.)
Continuation of SCTE 103. Prerequisites: SCTE 103, 125. A modularized course in the study of advanced and specialized techniques widely used in the scientific, technical occupations within the area. Modules will include use of ion exchange apparatus, microtone, radiation techniques, tailored to particular student interests and employment prospects. Emphasis upon understanding concepts underlying techniques and upon ingenuity in modifying techniques for special purposes. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SCTE 221-222-223 Science Technology Applications I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisites SCTE 103, 125. Technical applications in an on-the-job setting. Emphasis upon specialized equipment, learning in actual laboratory setting, diversity in technique types, the development of capacity for independent work. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SCTE 230 Introduction to Water and Wastewater Treatment (3 cr.)
Introduction to types, sources and effects of water pollutants. Parameters of water pollution measurement, measurement techniques, generalized consideration of water and wastewater (municipal and industrial) treatment. Lect 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SCTE 298 Seminar and Project (1-5 cr.)
(see page 91)

SECRETARIAL SCIENCE

SECR 100 Secretarial Skill Review (3 cr.)
Designed to provide the educational secretary with the opportunity to review office skills based on individual needs in typewriting, shorthand, machine transcription, and selected office machines. Lect. 3 hrs. per wk.

SECR 110 Personal Typing (2 cr.)
A course in typing designed to teach the keyboard, simple techniques: emphasis on accuracy, preparation of reports, letters, and other typing requirements. Lect. 1 hr., Lab. 2 hrs., Total 3 hrs. per wk.

SECR 111 Typewriting I (3 cr.)
Introductory course in typewriting with emphasis on good keyboard technique and machine operation. Special emphasis on letter format, tabulation and centering problems, and manuscript typing. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 112 Typewriting II (3 cr.)
Prerequisite SECR 111 or equivalent. Continuation of skill building with emphasis on standards required to meet job requirements in production typing. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 113 Typewriting III (3 cr.)
Prerequisite SECR 112 or equivalent. Skill development with high standards required to meet job requirements in production typing. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 121 Shorthand I (4 cr.)
Presentation of shorthand principles in Gregg Diamond Jubilee Series with emphasis on basic reading and writing skills, associated vocabulary and grammar. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 122 Shorthand II (4 cr.)
Prerequisite SECR 121 or equivalent. Completion of shorthand theory and reinforcement of shorthand principles, further development of general business vocabularies and English usage. General business dictation. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 123 Shorthand III (4 cr.)
Prerequisite SECR 122 or equivalent. Increased speed in general business dictation. Introduction of specialized business dictation with emphasis on vocabularies. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 131-132-133 Shorthand Machine Skills I-II-III (4 cr.)
Construction and operation of the machine, basic and advanced writing skills, rapidity in writing skills, development of vocabulary in general and technical language, general and technical letters and technical papers, additional dictation practice. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 136 Filing and Records Management (3 cr.)
Indexing principles, filing procedures and techniques as applied to filing systems, establishment of filing system, selection of equipment and supplies. Survey of system using electronics and microfilm, solution of records management problems. Lect. 3 hrs. per wk.

SECR 138 Office Recordkeeping (3 cr.)
Concentration on the types of recordkeeping duties performed by secretaries including financial, tax, payroll, personnel and inventory. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 146 School Recordkeeping & Records Management (3 cr.)
The keeping of financial, student, personnel, inventory, and other records with particular emphasis on the student attendance register. Indexing principles review, filing procedures and techniques as applied to educational systems. Lect. 3 hrs. per wk.

SECR 148 Educational Secretarial Procedures (3 cr.)
Secretarial procedures unique to educational organizations including special correspondence, reproduction requirements, preparation of educational reports, proposals, visual aids, and vocabulary development. Lect. 3 hrs. per wk.

SECR 156 Personal Development (3 cr.)
A course designed to develop, enlarge and improve the personality, over-all appearance, ease in handling business and social situations with resulting self-confidence in job interviews, placement and continued employment. Lect. 3 hrs. per wk.

SECR 197 Cooperative Education (1-5 cr.)
(see page 91)

SECR 211 Office Systems and Procedures I (4 cr.)
Prerequisite SECR 113 or divisional permission. Study of word-processing management, office layout and landscape, research in office supplies and equipment, review of copying and duplicating equipment, application of stencil techniques, and in-baskets. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 212 Office Systems and Procedures II (4 cr.)
Prerequisite SECR 211 or divisional permission. Continuation of SECR 211 with special emphasis on secretarial procedures and responsibilities in the following areas: Office receptionist, telephone and appointment calendar techniques, mail handling, communication services including composing of business correspondence, travel and conference arrangements, and in-baskets. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 213 Office Systems and Procedures III (4 cr.)
Prerequisite SECR 212 or divisional permission. Continuation of SECR 212 with special emphasis on secretarial responsibilities in collecting business information, processing and presenting business data, maintaining records in banking, securities, and insurance transactions, payroll and tax procedures, and in-baskets. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 216 Executive Typewriting (3 cr.)
Prerequisite SECR 113 or equivalent. Further development of speed and accuracy on production typing with emphasis on employment standards. Instruction in use of the executive style typewriters, reports, tabulations, statistical materials and justified copy. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 217 Typewriting Skill Building (3 cr.)
Prerequisite SECR 113. Further development of speed and accuracy on production and in-basket typing with emphasis on employment standards. Preparation for employers' secretarial placement examination. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 219 Magnetic Tape Selectric Typewriter (3 cr.)
Prerequisite SECR 113. Operation of automatic typewriter, procedures for recording and playing back from tapes, revision and updating of tapes, merging information from two tapes. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 220 Magnetic Card Executive Typewriter (1 cr.)
A self-instructional laboratory course designed to develop proficiency in the operation of the Magnetic Card Executive Typewriter. Lab. 3 hrs. per wk.

SECR 221 Advanced Shorthand and Transcription I (3 cr.)
Prerequisites SECR 123 or equivalent. Review of principles of shorthand, development of vocabulary and phrases, speed building on general business dictation and transcription. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 222 Advanced Shorthand and Transcription II (3 cr.)
Prerequisite SECR 221. Continuation of speedbuilding with emphasis on particular areas of general business, developing special vocabularies phrases, and shortcuts. Emphasis on spelling, grammar, and other transcription skills. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 223 Advanced Shorthand and Transcription III (3 cr.)
Prerequisite SECR 222. Speed building in typical business dictation with speed and accuracy in transcription from shorthand notes. Preparation for employers' secretarial placement examinations. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 227 Medical Transcription (3 cr.)
Prerequisite SECR 222. Medical secretary preparation. Skill in taking dictation and transcribing material involving medical shorthand forms and phrases. Proficiency in use of medical vocabulary, forms and procedures. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 231 Legal Transcription I (3 cr.)
Prerequisite SECR 123 or equivalent. Skill in taking dictation and transcription is developed through concentrated study and practice of high-frequency law terminology. The meanings, usage, spelling, pronunciation, and construction of shorthand outlines for the more common legal terms are stressed. Study of foreign-language syllables appearing in law terms is emphasized. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 232 Legal Transcription II (3 cr.)
Prerequisite SECR 231. A further refinement in taking and transcribing material involving legal shorthand forms and phrases. The preparation of client and court documents. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 233 Legal Transcription III (3 cr.)
Prerequisite SECR 232. Further development of skill in taking dictation and transcribing material similar to that used in courts and legal offices. Emphasis is on speed and accuracy in production. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 236 Specialized Typewriter Applications (3 cr.)
Prerequisite SECR 113. Development of proficiency in use of a variety of specialized typewriters, including the executive typewriter and automatic typewriters involving magnetic tape or cards and similar electronic work processing devices. Emphasis on techniques and application with development of speed and accuracy in production operation. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SECR 251 Legal Secretarial Procedures I (4 cr.)
Prerequisite SECR 113 or equivalent. Research into community service agencies that are essential to the law office. Procedures involving legal vocabulary. Techniques required for the form and style of client and legal documents. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 252 Legal Secretarial Procedures II (4 cr.)
Prerequisite SECR 251. Instruction in law office procedures, law office filing, record keeping, and reference materials. The preparation of forms, court documents and instruction necessary to commence, continue, and conclude a legal matter. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 253 Legal Secretarial Procedures III (4 cr.)
Prerequisite SECR 252. Further refinement and simulation of procedures followed in law offices and courts, including specialized machine transcription, field trips, seminars. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 254-255 Advanced Machine Transcription I-II (3 cr.) (3 cr.)
Prerequisite SECR 113 or divisional permission. Introduction to and development of modern machine transcription incorporating efficient operation of transcribing equipment, good listening techniques, grammar, punctuation, correct business English usage and business formats. Emphasis is placed on high production rates of mailable copy. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SECR 271-272-273 Medical Secretarial Procedures I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite SECR 113 or divisional permission. Instruction in medical office procedures, medical office filing and record keeping, extension of medical vocabulary, preparation of medical reports and special correspondence requirements. Lect. 3 hrs., Lab. 2 hrs., Total 5 hrs. per wk.

SECR 297 Cooperative Education (1-5 cr.)
(see page 91)

SECR 298 Seminar and Project (1-5 cr.)
Prerequisite SECR 222 and SECR 212 or program permission. (see page 91)

SECR 299 Supervised Study (1-5 cr.)
(see page 91)

SOCIAL SCIENCE

SOSC 101-102-103 Contemporary American Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
An analysis of the factors involved in the development of the American Society and American Culture to develop an understanding of American history. American government, American economics, and man's role in society. These courses need not be taken sequentially. Lect. 3 hrs. per wk.

SOSC 121-122-123 Current American Social Problems I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of contemporary America from the perspective of the Social Sciences designed to provide a basis for the forming of individual judgments on major American domestic issues. The Constitution of the United States provides a primary vehicle for exploration of problems underlying current political, economic, social and individual behavioral patterns and for discussions of relevant applications in the news of today. Lect. 3 hrs. per wk.

SOSC 180 Man in the Modern World (3 cr.)
Prerequisite division permission. Survey of contemporary social, political, and economic problems related to industrialization, urbanization, the role of government, national and international tensions. Lect. 3 hrs. per wk.

SOSC 199 Supervised Study (1-5 cr.)
(see page 91)

SOCIOLOGY

SOCI 101-102-103 Introductory Sociology I-II-III (3 cr.) (3 cr.) (3 cr.)
SOCI 101 is prerequisite for either SOCI 102 or SOCI 103. The fundamental concepts and the general principles of sociology; social institutions, population study, human ecology and community study, culture, human nature and personality, social interaction and stratification, and social problems. Lect. 3 hrs. per wek.

SOCI 104-105 Introductory Sociology I-II (5 cr.) (4 cr.)
The fundamental concepts and the general principles of sociology; social institutions, population study, human ecology and community study, culture, human nature and personality, social interaction and stratification, and social problems. Lect. 5-4 hrs. per wk.

SOCI 116 Child-Parent-Community Relations (3 cr.)
This course is designed to assist the student in learning about and utilizing resources within a given community that are designed to create an environment suitable for the development of children. The course will focus on the standards and interrelationships within the community that influence children's developing concepts concerning education, religion, ethical values, and citizenship. Lect. 3 hrs. per wk.

SOCI 170 Introduction to Black American Culture (3 cr.)
An introduction to the study of the Black person in America. A broad historical view, population, family, economic and cultural trends; contributions of civic and political leaders, writers and artists. Lect. 3 hrs. per wk.

SOCI 184-185 Contemporary Social Problems I-II (3 cr.) (3 cr.)
Application of sociological concepts and methods to the analysis of current social problems in the United States including family and community disorganization, delinquency and crime, mental illness, and intergroup relations. Lect. 3 hrs. per wk.

SOCI 211-212-213 Principles of Anthropology I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of the physical, social, and cultural development and behavior of human beings since their appearance on earth. Included will be several interconnected fields: human evolution, physical anthropology, archaeology, cultural anthropology, ethnology, and scientific linguistics. Lect. 3 hrs. per wk.

SOCI 236 Marriage and the Family (3 cr.)
A study of comparative family systems and problems related to marriage and the family. Lect. 3 hrs. per wk.

SOCI 237 Marriage and the Family (5 cr.)
Prerequisite SOCI 101, 104, or 185. A study of comparative family systems and problems related to marriage and the family. Lect. 5 hrs. per wk.

SOCI 240 Introductory Anthropology (3 cr.)
A study of the origin and evolution of man based upon the fossil record, and an analysis of the status of modern racial grouping. Lect. 3 hrs. per wk.

SOCI 244 Introductory Anthropology (5 cr.)
A study of the origin and evolution of man based upon the fossil record, and an analysis of the status of modern racial grouping. Lect. 5 hrs. per wk.

SOCI 246 Cultural Anthropology (3 cr.)
The application of the concept of culture to the study of contemporary societies, both primitive and modern. Such institutional areas as magic and ritual, crime, custom, law, economy, courtship, marriage and childbearing will be analyzed cross-culturally. Lect. 3 hrs. per wk.

SOCI 247 Cultural Anthropology (5 cr.)
The application of the concept of culture to the study of contemporary societies both primitive and modern. Such institutional areas as magic and ritual, crime, custom, law, economy, courtship, marriage and childbearing will be analyzed cross-culturally. Lect. 5 hrs. per wk.

SOCI 248 Case Studies in Cultural Anthropology (3 cr.)
A comparative, in-depth study of the structure and organization of selected primitive societies. Lect. 3 hrs. per wk.

SOCI 266 Death and Society (3 cr.)
Prerequisites SOCI 101-102-103 or equivalent or with division permission. An in-depth study of the theoretical, practical, and historical aspects of death. Attention will also be focused upon the student's own ideas, feelings, and attitude toward death, dying, and the significance and consequences of those attitudes. Lect. 3 hrs. per wk.

SOCI 298 Seminar and Project (1-5 cr.)
Prerequisite division permission. (see page 91)

SOCI 299 Supervised Study (1-5 cr.)
Prerequisite division permission. (see page 91)

SPANISH

SPAN 101-102-103 Elementary Spanish I-II-III (4 cr.) (4 cr.) (4 cr.)
Introductory training in the understanding, speaking, reading, and writing of Spanish with emphasis on manipulation of the structure of the language. Lect. 3 hrs., Lab. and drill 2 hrs., Total 5 hrs. per wk. *Not recommended for students who have, within the past two years, received 2 years high school or one year college credit for this language.*

SPAN 104-105 Introductory Spanish I-II (6 cr.) (6 cr.)
The understanding, speaking, reading, and writing of Spanish with emphasis on manipulation of the structure of the language. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

SPAN 106 Review of Introductory Spanish (5 cr.)
An intensive review of Spanish structure and phonology; designed for students who have had some previous training in Spanish, but whose proficiency does not qualify them for Spanish 201. *Permission of the division required.*

SPAN 199 Supervised Study (1-5 cr.)
(see page 91)

SPAN 201-202-203 Intermediate Spanish I-II-III (4 cr.) (4 cr.) (4 cr.)
Prerequisite Spanish 103, 106, or successful completion of two years of high school Spanish and permission of the instructor. Advanced training in the classroom. Lect. 3 hrs., Lab. and drill 2 hrs., Total 5 hrs. per wk.

SPAN 204-205 Intermediate Spanish I-II (6 cr.) (6 cr.)
Prerequisite SPAN 105 or successful completion of two years of high school Spanish and division permission. Advanced study in the understanding, speaking, reading, and writing of Spanish. Spanish is used in the classroom. Lect. 5 hrs., Lab. 3 hrs., Total 8 hrs. per wk.

SPAN 221-222-223 Intermediate Spanish Conversation I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite SPAN 203 or equivalent. Additional training in understanding and speaking Spanish with continued but specific emphasis on basic structures and idioms. Reading and writing are minimized. Spanish is used in the classroom. Lect. 3 hrs. per wk.

SPAN 231-232-233 Survey of Spanish Literature and Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite SPAN 203 or equivalent. An introduction to Spanish life and culture and to the contributions of Spain to world civilization from medieval times to the present. Readings in the original Spanish. Spanish is used in the classroom. Lect. 3 hrs. per wk.

SPAN 234-235-236 Hispanic Culture and Civilization I-II-III (3 cr.) (3 cr.) (3 cr.)
Prerequisite SPAN 103. An introduction to Hispanic Culture with emphasis on Latin American life and civilization and including literature survey. Spanish is used in the classroom. Lect. 3 hrs. per wk.

SPAN 299 Supervised Study (1-5 cr.)
(see page 91)

SPEECH AND DRAMA

SPDR 106-107 Introduction to the Theatre I-II (3 cr.) (3 cr.)
The principles of drama; the study of the development of theatre production; study of selected plays as theatrical presentations. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

SPDR 111-112-113 Acting I-II-III (3 cr.) (3 cr.) (3 cr.)
A study of styles of acting. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SPDR 119 Theatre Workshop (1-5 cr.)
Organization and work in the various activities of play production. Practice in set design, stage carpentry, theatre development, sound, costumes, lights, stage managing, props, promotion, and stage crew. May be repeated for credit. Variable hrs.

SPDR 130 Principles of Public Speaking (5 cr.)
Theory and principles of public address. Emphasis will be on preparation and delivery. Lect. 5 hrs. per wk.

SPDR 131-132-133 Fundamentals of Public Speaking I-II-III (3 cr.) (3 cr.) (3 cr.)
Introduction to the art of public speaking, covering analysis of audience and occasion, organization, writing and wording, rhetorical argumentation, and delivery. Practice in forms of expository public speaking, persuasive speaking, and special types of public address. Lect. 3 hrs. per wk.

SPDR 136 Oral Communications (3 cr.)
A study of effective communication with emphasis on speaking and listening. Lect. 3 hrs. per wk.

SPDR 137 Public Speaking (3 cr.)
Development of skill in speechmaking. Lect. 3 hrs. per wk.

SPDR 141-142-143 Voice and Diction (3 cr.) (3 cr.) (3 cr.)
A Study through phonetics of the correct speech sounds, drills in pronunciation, enunciation, and voice usage. Lect. 3 hrs. per wk.

SPDR 157 Debate (3 cr.)
Prerequisite either SPDR 130, 136, 137, or permission of the division. The presentation of oral argument and debate. Emphasis upon effectiveness in the analysis of issues, evidence, the reasoning process and skill in oral presentation. Lect. 3 hrs. per wk.

SPDR 158 Forensics (1-5 cr.)
This course is designed to provide students with an opportunity to improve their communication skills in speaking situations both within the classroom environment and outside of the classroom. The course includes instruction in the preparation and delivery of the various competitive speech activities including persuasive speaking, extemporaneous speaking, impromptu speaking and the oral interpretation of literature.

SPDR 198 Seminar and Project (1-5 cr.)
(see page 91)

SPDR 199 Supervised Study (1-5 cr.)
(see page 91)

SPDR 201-202-203 History of Theatre I-II-III (3 cr.) (3 cr.) (3 cr.)
A survey of theory and history of the theatre from Greeks to the Modern. Lect. 3 hrs. per wk.

SPDR 218 Directing (3 cr.)
Fundamentals of stage direction. Lect. 3 hrs. per wk.

SPDR 230 Advanced Public Speaking (5 cr.)
Prerequisite either SPDR 130, 136, 137 or division approval. Preparation and delivery of the various advanced forms and methods of public address. Lect. 5 hrs. per wk.

SPDR 256-257 Group Discussion I-II (3 cr.) (3 cr.)
Techniques and purposes of group discussion. Lect. 3 hrs. per wk.

SPDR 266 The Art of the Film (3 cr.)
An introduction to the art of the film: a survey of the history of the film; viewing, discussion and analysis of selected films; introduction to the film techniques of composition, shot sequence, lighting, visual symbolism, sound effects, editing. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

SPDR 276 Oral Interpretation (3 cr.)
Prerequisite divisional permission or speech communication course. Introduction to the study of techniques and styles of oral reading. Lect. 3 hrs. per wk.

SPDR 298 Seminar and Project (1-5 cr.)
(see page 91)

SPDR 299 Supervised Study (1-5 cr.)
(see page 91)

URBAN-REGIONAL PLANNING AND DEVELOPMENT

URPD 100 Survey of Planning and Development (3 cr.)
Introduction to planning and development. Advantages of regional approach to planning along with benefits of inter-government cooperation in sound planning efforts. Three principal planning functions are studied: (1) Inventory — collection and analysis of planning and engineering data, (2) plan design, (3) plan implementation. Lect. 3 hrs. per wk.

URPD 104 Land Use Planning and Development (3 cr.)
MATH 118 or equivalent; URPD 100. The student develops an understanding of environmental factors to be considered in land use planning, how to determine best locations for various types of development, the process of analyzing and mapping primary and secondary determinants in land uses. The determinants for each type of land use are examined in light of other factors such as environmental impact. Lect. 3 hrs. per wk.

URPD 106 Technology Assessment (3 cr.)
Overview of need for Technology Assessment as a foundation for Planning and Development. Role of Technology Assessment in relation to Architecture, Engineering, Socio-Political and Legal problems in planning. Lect. 3 hrs. per wk.

URPD 108 Urban-Regional Planning, Etiology and Theory (3 cr.)
The background of orderly planning and development. Concepts in planning processes and insights into urban-regional growth and change, social structure and environmental problems. Examination of political, economic and social causes of growth problems and research in spatial structure. Lect. 3 hrs. per wk.

URPD 116 Urban-Regional Legislation and Regulations (3 cr.)
Prerequisite URPD 100. A study of legislation and the legal aspects of planning and development in a democratic society. Analysis and evaluation of planning policies, enabling legislation, zoning, land development, building codes and urban renewal. The effects of federal legislation on planning. Lect. 3 hrs. per wk.

URPD 200 Facilities Planning and Development (3 cr.)

Prerequisite URPD 104. Consideration of planning services in the economical and effective utilization of various facilities in areas such as a region (combination of local jurisdiction and within the respective jurisdictions). Urban-regional interdependence is stressed in the development of public systems including water resources, education, power, sewer, protection and other public services. Lect. 3 hrs. per wk.

URPD 201 Planning Procedures I — Functional Process of Planning Inventory (3 cr.)

Corequisites: URPD 200; DAPR 106. Students to collect, analyze and disseminate planning data on a continuing, uniform basis; it includes practical studio experience procedures for maintaining a data bank on land use, solid, population, surface and ground water quality, circulation of transportation and on sites having scenic, recreational or cultural value. Students are involved in procedures for pre-designing structures for planning information systems. Lect. 2 hrs. per wk. Lab. 2 hrs., Total 4 hrs. per wk.

URPD 202 Planning Procedures II — Developing Area Design Through Systems Engineering (3 cr.)

Corequisites: BUAD 254; DAPR 120. Emphasizes planned regional development important to attractive, efficient and healthful population distribution. Utilizing data from planning inventory and data bank studied earlier, students are involved in procedures of a systems approach to planning. They seek to achieve good design by (1) setting objectives (2) creating alternative plans (3) team activity (4) relating design to the total environment. Lect. 2 hrs., Studio 2 hrs., Total 4 hrs. per wk.

URPD 203 Planning Procedures III — Plan Programming and Implementation (3 cr.)

Prerequisite URPD 202. Voluntary cooperative local and regional implementation of planning programs is emphasized. The concept of planning unit development is carried out in studio situations. Attention is given to zoning, social service needs, public works and land use control laws. Students gain insight into environmental and other factors that limit areas for urban development. Lect. 2 hrs., Studio 2 hrs., Total 4 hrs. per wk.

URPD 206 Administration of Planning: Role of the Para-Professional (3 cr.)

Prerequisite URPD 201. Basic concepts in Planning Management, growth control techniques, organization and planning policies are studied. The student becomes acquainted with government operation, personnel organization, financial planning and budget analysis and utilization of data processing in fiscal administration. Job descriptions are reviewed and potential employers are identified. Lect. 3 hrs. per wk.

URPD 207 Transportation Planning (3 cr.)

Prerequisite URPD 201. Importance of balance among various modes of transportation is emphasized as well as the impact of energy shortages on the transport system. Transportation planning principles and policy problems are studied along with methods of analyzing demand and choices of systems for circulation of people and goods by land and by air by a balanced total system. Lect. 3 hrs. per wk.

URPD 209 Advanced Techniques in Planning (3 cr.)

Prerequisite URPD 202. Corequisites URPD 203 and 206. Advanced methods and techniques in functional structuring or spaces used for various purposes — Quantitative analysis in planning. Synthesizes planning data and prepares and conducts planning presentations. Fundamental planning research is carried out including case studies. Proficiency in aerial photograph techniques and visual presentation is emphasized. Lect. 2 hrs., Lab. 2 hrs., Total 4 hrs. per wk.

URPD 297 Planning Cooperative Education (1 cr.)

A work-study program in planning and development. The student is engaged in an approved planning agency under qualified supervision.

URPD 298 Seminar in Planning and Development (2 cr.)

The seminar requires the successful completion of a research project related to the student's occupational objectives.

WELDING

WELD 21-22-23 Arc Welding I-II-III (3 cr.) (3 cr.) (3 cr.)

The operation of AC transformers and DC motor generator arc welding sets. Welding polarities, heats, and electrodes for use in joining various metal alloys by the arc welding process. Running beads, butt and fillet welds in all positions, to detect weakness. Safety procedures emphasized. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

WELD 30 Inert Gas Welding (3 cr.)

Introduction and practical operations in the use of inert-gas-shield arc welding. Equipment, operation safety, practice in the various positions, shielding gases, filler rods, process variations and applications, manual and automatic welding. Lect. 2 hrs., Lab. 3 hrs., Total 5 hrs. per wk.

WELD 41-42-43 Welding Tests I-II-III (2 cr.) (2 cr.) (2 cr.)

Techniques and practices of testing welded joints; destructive and non-destructive tests, guiding, discoloration heat tests, porous examinations, tensile, hammer and free bend tests, visual, magnetic, fluorescent and radiographic tests. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

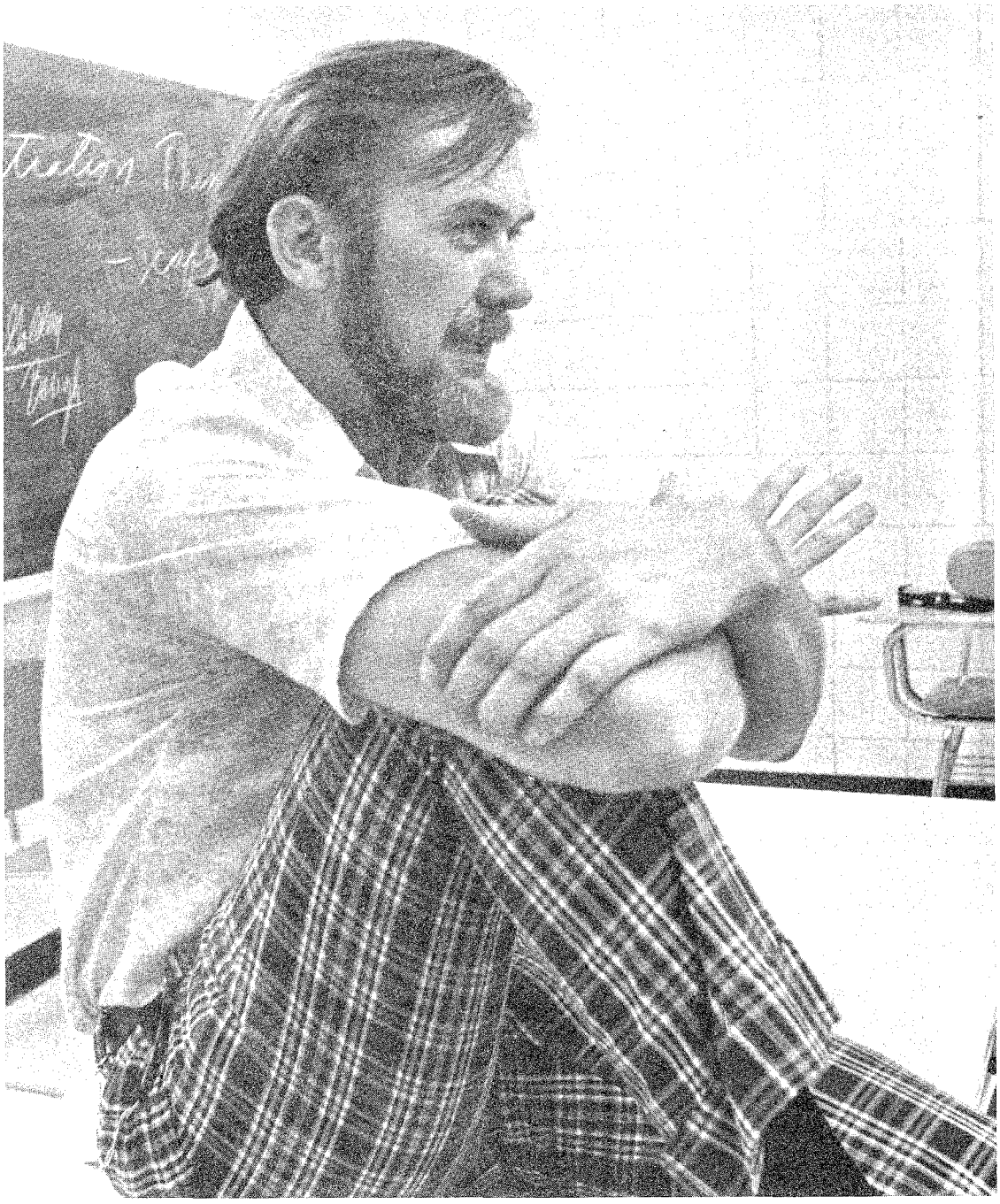
WELD 51-52 Oxyacetylene Welding and Cutting I-II (3 cr.) (3 cr.)

Introduction to the history of oxyacetylene welding, the principles of welding and cutting, nomenclature of the equipment, assembly of the puddle, running flat beads, butt welding in the flat, vertical and overhead position, brazing, hard and soft soldering. Safety procedures in the use of tools and equipment. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

WELD 60 Welding Quality Control (2 cr.)
Techniques and practices of inspection, interpretation of tests and measurements and preventive measures to assure accuracy and bending. Lect. 1 hr., Lab. 3 hrs., Total 4 hrs. per wk.

WELD 106 Pipe Welding (3 cr.)
Shielded metal, arc welding processes including the welding of pressure piping in the horizontal, vertical, and horizontal — fixed positions. Practices will be in accordance with sections VIII and IX of the ASME Code. Lect. 1 hr., Lab. 6 hrs., Total 7 hrs. per wk.

WELD 115 Arc and Gas Welding (4 cr.)
Arc and gas welding practices. Safety, general welding practices and effects of welding on metal. Lect. 3 hrs., Lab. 3 hrs., Total 6 hrs. per wk.



FACULTY AND STAFF

The five campuses are indicated as follows: AL, Alexandria; AN, Annandale; LO, Loudoun; MA, Manassas; WO, Woodbridge and ELI, Extended Learning Institute. Those individuals with cross campus responsibilities are indicated as CX, College Staff.

Acosta, Joan V.; Nursing Diploma, Kings County Hosp. of Hursing; Student Health Nurse (*AL*)

Adams, James M.; *Assoc. Prof.;* B.S., M.A., Appalachian State Univ., D.A., Idaho State Univ.; Chairman; *Division of Business & Social Science* (*WO*)

Adams, Joseph D.; *Assoc. Prof.;* B.A., Franklin and Marshall Coll., M.Ed., Shippensburg State Coll., Ph.D., Lehigh Univ.; *Ass't Div. Chr. English* (*AN*)

Adams, Muriel H.; *Instructor;* A.A. Central Fla. Jr. Coll., B.S., Medical Coll. of Ga.; *Medical Record Technology* (*AN*)

Adamson, Alice L.; *Instructor;* B.S., Maryville Coll., M.S., California State Univ.; *Mathematics* (*AN*)

Aiello, Nancy C.; *Ass't Prof.;* B.A., M.S., Syracuse Univ.; *Chairman, Division of Natural and Applied Sciences* (*LO*)

Alcorn, Fidele L.; *Instructor;* B.S., M.S. Howard Univ., *Chemistry* (*AN*)

Alford, Terry; *Ass't Prof.;* B.A., M.A., Ph.D., Mississippi State Univ.; *History,* (*AN*)

Allen, Eileen A.; *Assoc. Prof;* A.B., Univ. of Md., M.A., Geo. Wash. Univ.; *English* (*AN*)

Altomare, Robert E.; *Ass't Prof.;* B.S., Capitol Inst. of Technology; *Electronics* (*WO*)

Anderson, Carol L.; *Ass't Prof.;* A.S., Ferrum Coll. B.S., M.S., Virginia Commonwealth Univ.; *Business Management & Accounting* (*AL*)

Atchison, Evelyn S.;*Ass't Prof.;* B.S.N., Duquesne Univ., M.S.N., Catholic Univ. of America; *Nursing* (*AN*)

Attilliis, Marie K.; *Instructor;* B.S., M.Ed., Virginia Commonwealth Univ.; *Counselor* (*LO*)

Atwater, Thomas C.; *Asst. Prof.,* B.S., M.A.C.T., Univ. of N.C.; *Business Management* (*AL*)

Auvil, Jean R.; *Ass't Prof.;* A.B. Berea Coll., M.A., American Univ.; *Art* (*AL*)

Avery, Fay; *Professor;* B.A., Parsons Coll., M.Ed., Univ. of Buffalo; *Coordinator, Cooperative Education* (*AL*)

Bachtell, Janice E.; *Ass't Prof.;* M.S., Catholic Univ.; *Nursing* (*AN*)

Bailey, Haroldine; *Ass't Prof.;* B.A., Colby Coll., M.Ed., Howard Univ.; *Counselor* (*AL*)

Bailey, Raymond C.; *Instructor;* A.B., Catawba Coll.; M.A., Ph.D., Univ. of Georgia; *History/Government* (*MA*)

Bailey, Sandra; *Ass't Prof.;* B.S., Indiana Univ.; *Head, Medical Record Technology Program* (*AN*)

Baldwin, Susan M.; *Ass't Prof.;* B.A., Boston Coll., M.A., Univ. of Ky.; *Foreign Languages* (*AN*)

Baldwin, Warren J.; *Instructor;* B.S., M.S. Ed., State Univ. of N.Y.; *Counselor* (*AN*)

Bandstra, James R.; *Asst. Prof.;* B.A., Dort College; *Data Processing* (*AL*)

Banks, Anne J.; *Ass't Prof.;* B.A., Wellesley Coll., M.F.A., George Wash. Univ.; *Ass't Division Ch. Visual Arts* (*AL*)

Bannon, John E.; *Instructor;* B.F.A., Maryland Inst. Coll. of Art, M.F.A., Univ. of Pa.; *Art* (*AN*)

Barbaro, Ronald D.; *Ass't Prof.;* B.A., Providence Coll., M.S., Univ. of Rhode Island, Ph. D., Rutgers Univ.; *Environmental Science* (*WO*)

Bassett, Max L.; *Assoc. Prof.;* B.A., M.A., SUNY at Albany, M.S. Calif. State Coll. at L.A., Ed. S., Ed.D., Univ. of Fla.; *Dean for Student Services* (*CS*)

Bassford, Kathleen A.; *Instructor;* B.A., M.A., Longwood Coll., *English* (*AL*)

Baten, Abdul K.; *Ass't Prof.;* B. Com Hons; M. Com, DACCA Univ.; M.B.A., American Univ., *Accounting* (*MA*)

Bausch, Robert; *Instructor;* B.A., M.A., Geo. Mason Univ.; *English* (*WO*)

Beach, Barbara; *Instructor;* B.M., M.M., Univ. of Md.; *Music* (*AL*)

Bearson, Joseph M.; *Ass't Prof.;* B.A., Brandeis Univ., M.B.A., Columbia Univ.; *Business Administration* (*WO*)

Beason, Sandra J.; *Instructor;* B.A., Purdue Univ., M.S.L.S. Catholic Univ.; *Media Processing Center* (*CS*)

Belmore, William E.; *Assoc. Prof.;* B.S., State Univ. Coll. of N.Y., M.S., Univ. of Oregon, Ed.D., Indiana Univ.; *Coordinator, Learning Laboratory* (*AN*)

Bennett, Donald J.; *Instructor;* B.S., Los Angeles State, *ADJU,* (*AL*)

Berg, Lilliam D.; *Instructor;* B.S., Birmingham Southern Coll., M.S., Emory Univ.; *Chemistry* (*AN*)

Bergeman, George W.; *Instructor;* B.A., M.S., Univ. of Iowa; *Math* (*LO*)

Berger, Pamela E.; *Ass't Prof.;* B.A., Univ. of Mich., M.A., Geo. Wash. Univ.; Ph.D., Geo. Wash. Univ.; *English* (*AN*)

Bernard, Lyle W.; *Instructor;* B.S., U.S. Military Academy; *Mathematics* (*AN*)

Bernier, Joseph W.; *Coordinator Dentistry;* B.S., Univ. of Md., D.D.S. Indiana Univ. (*AN*)

Bigelow, John H.; *Assoc. Prof.;* B.A., San Francisco State Coll.; M.A., Ph. D., Michigan State Univ.; *Urban Planning* (*AL*)

Billups, Fred H.; *Professor;* B.A. Wake Forest Coll. M. Div., Southern Baptist Theological Seminary, M.Ed., Coll. of William & Mary, Ed. D., Univ. of Va.; *Coordinator, Counseling Services* (*AN*)

Bimstein, Donald; *Assoc. Prof.;* B.S.S., City Univ. of N.Y., M.A., Geo. Wash. Univ.; *Administration of Justice* (*AN*)

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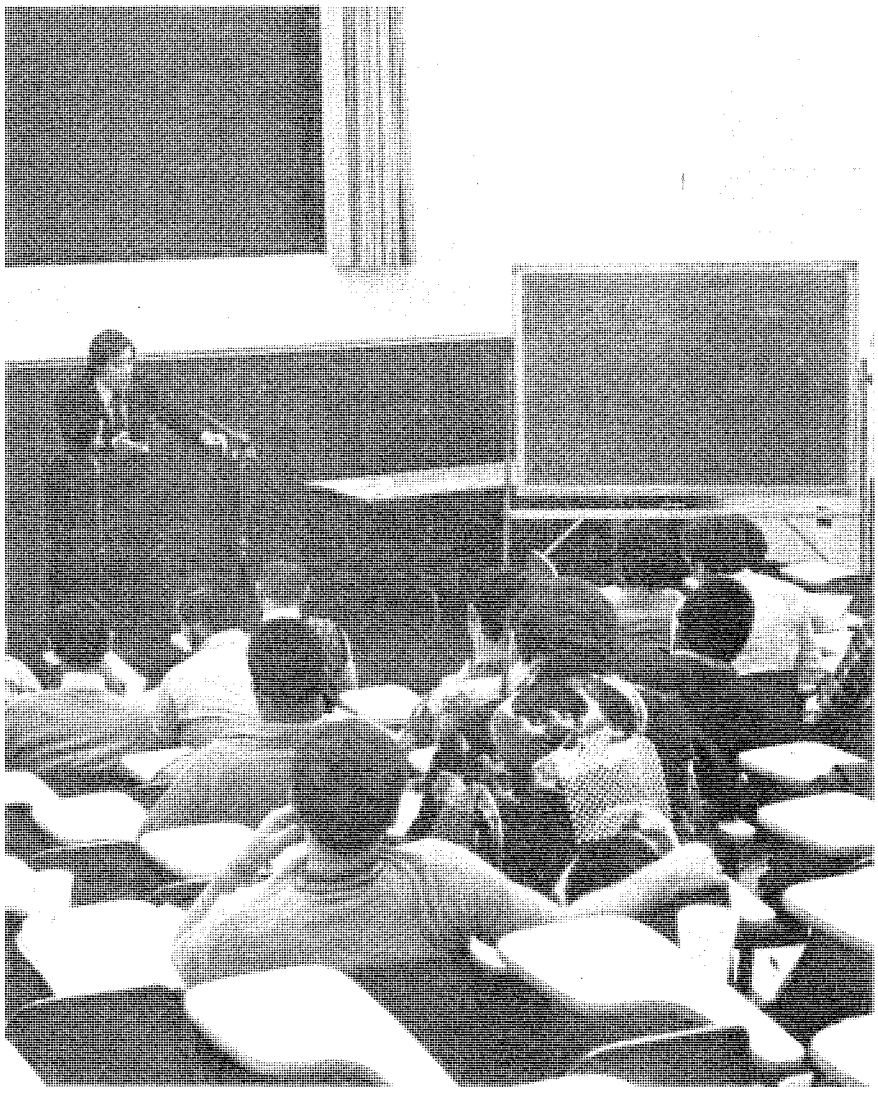

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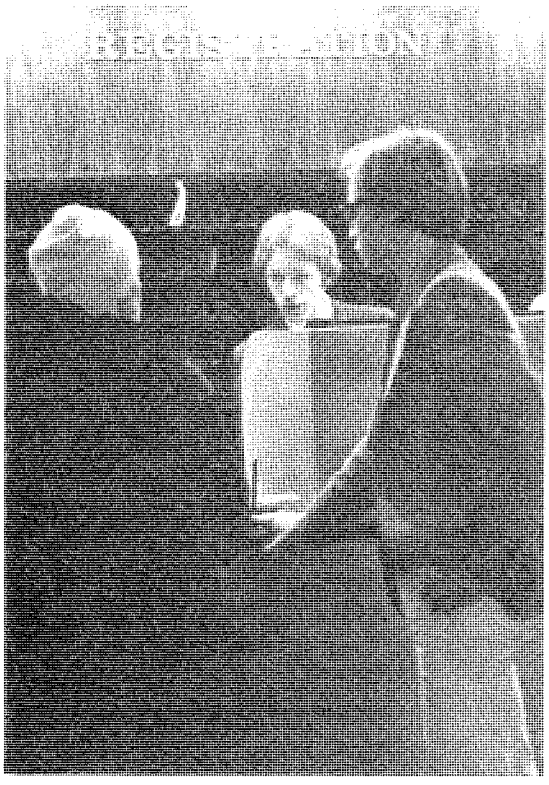

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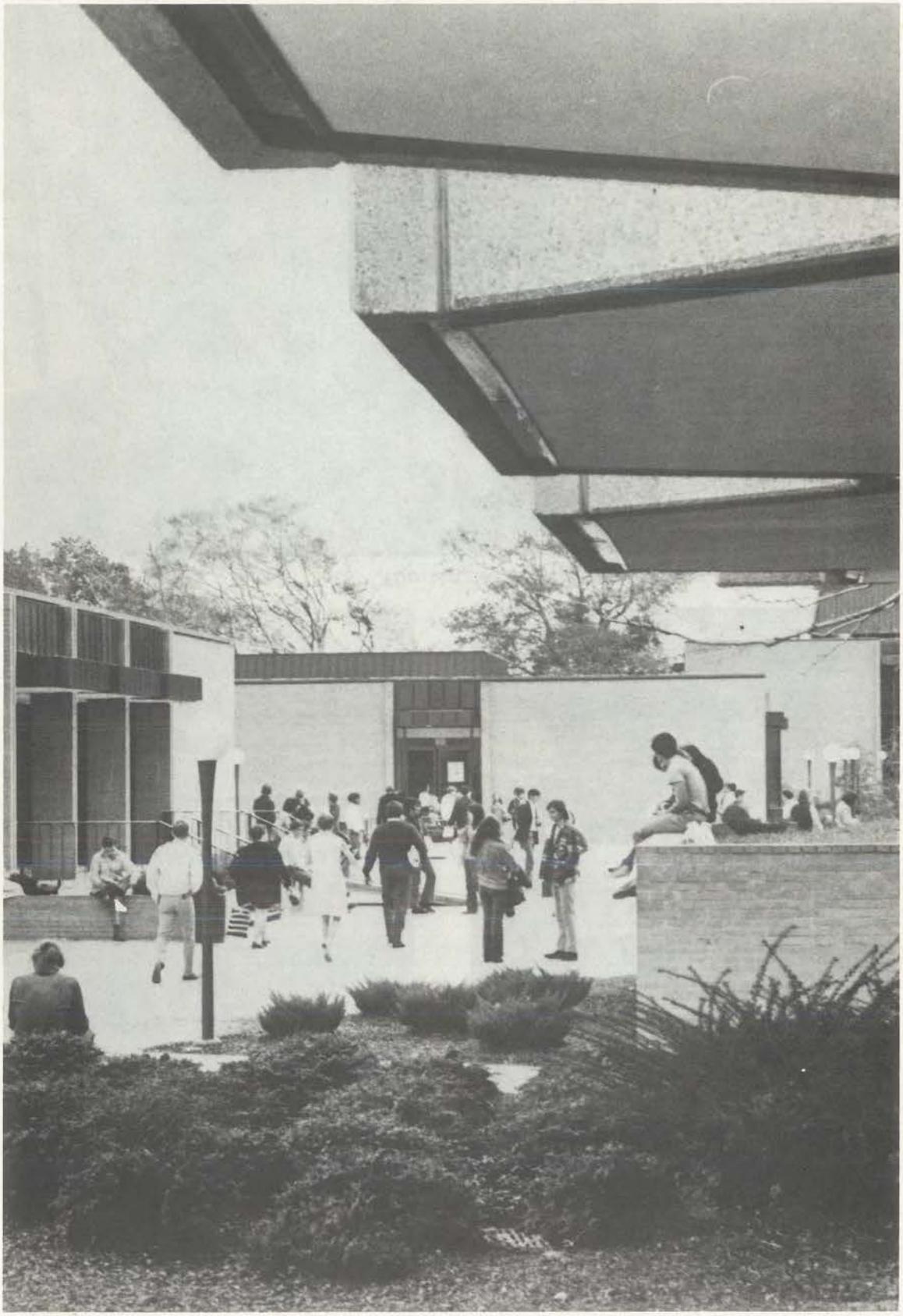

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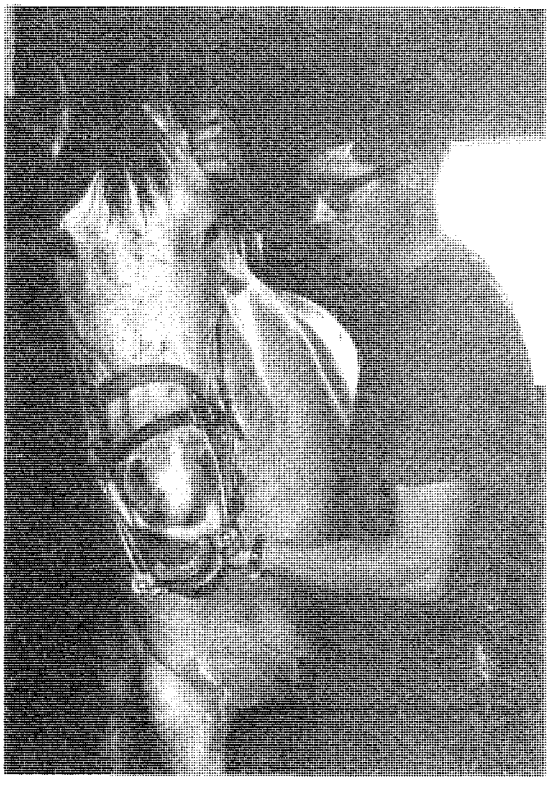

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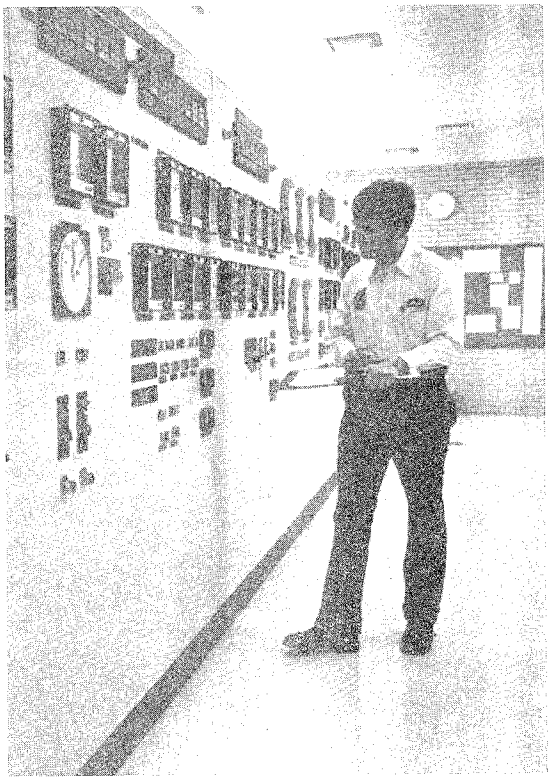

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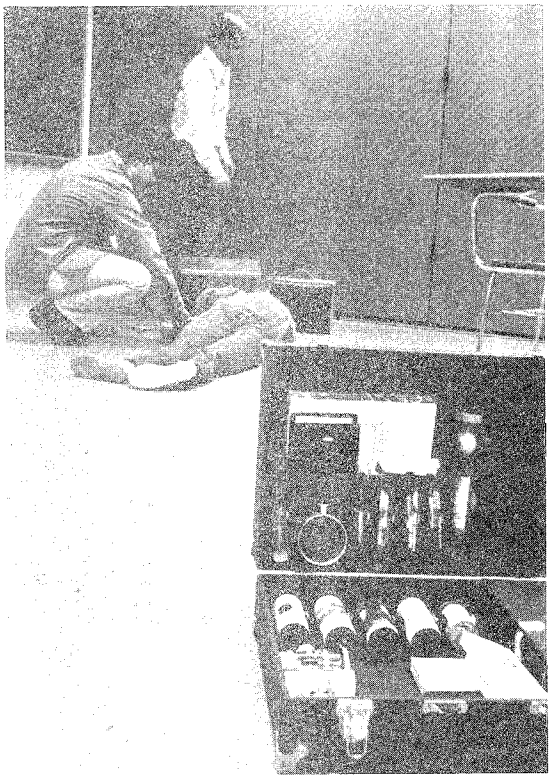

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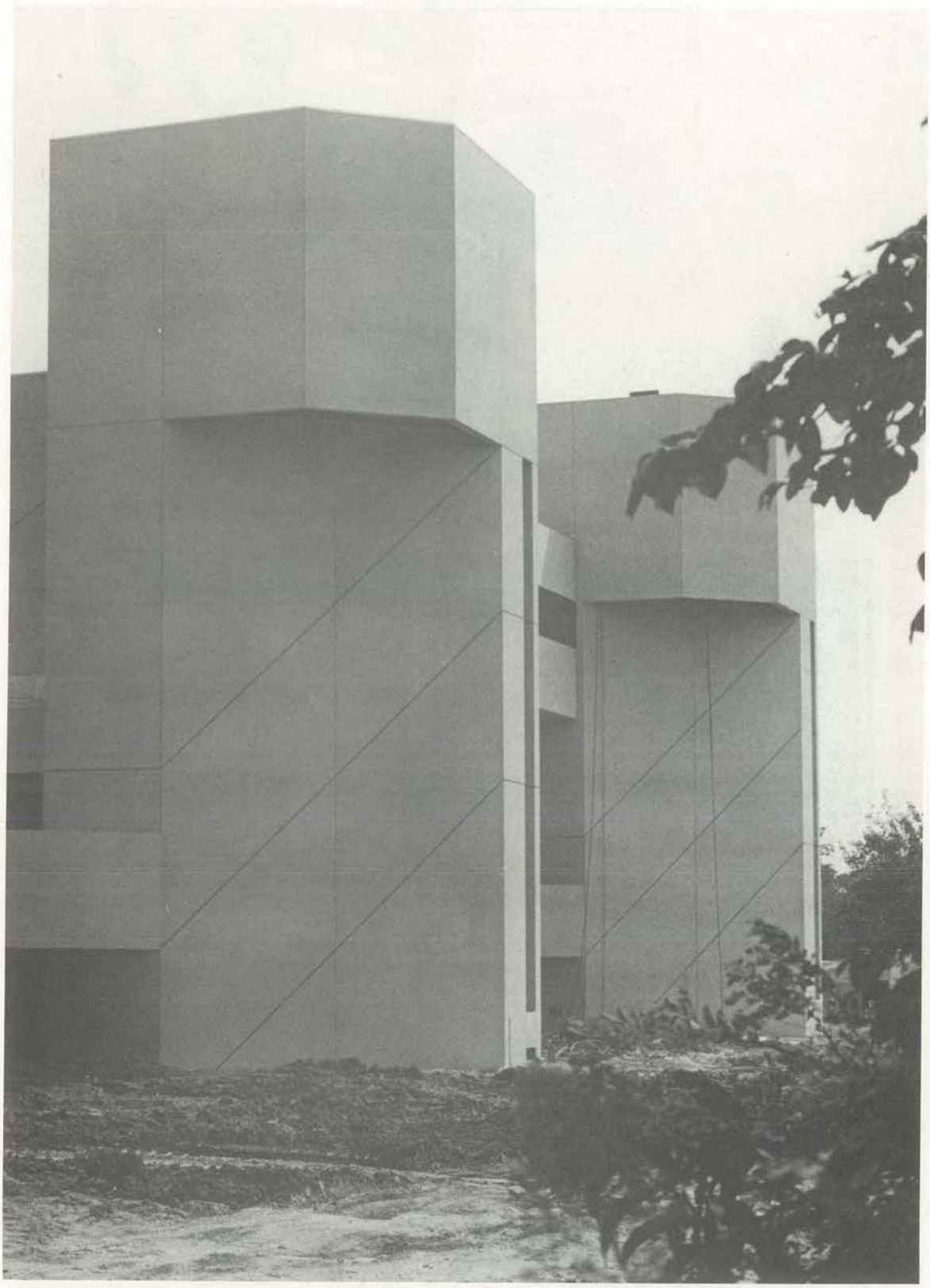

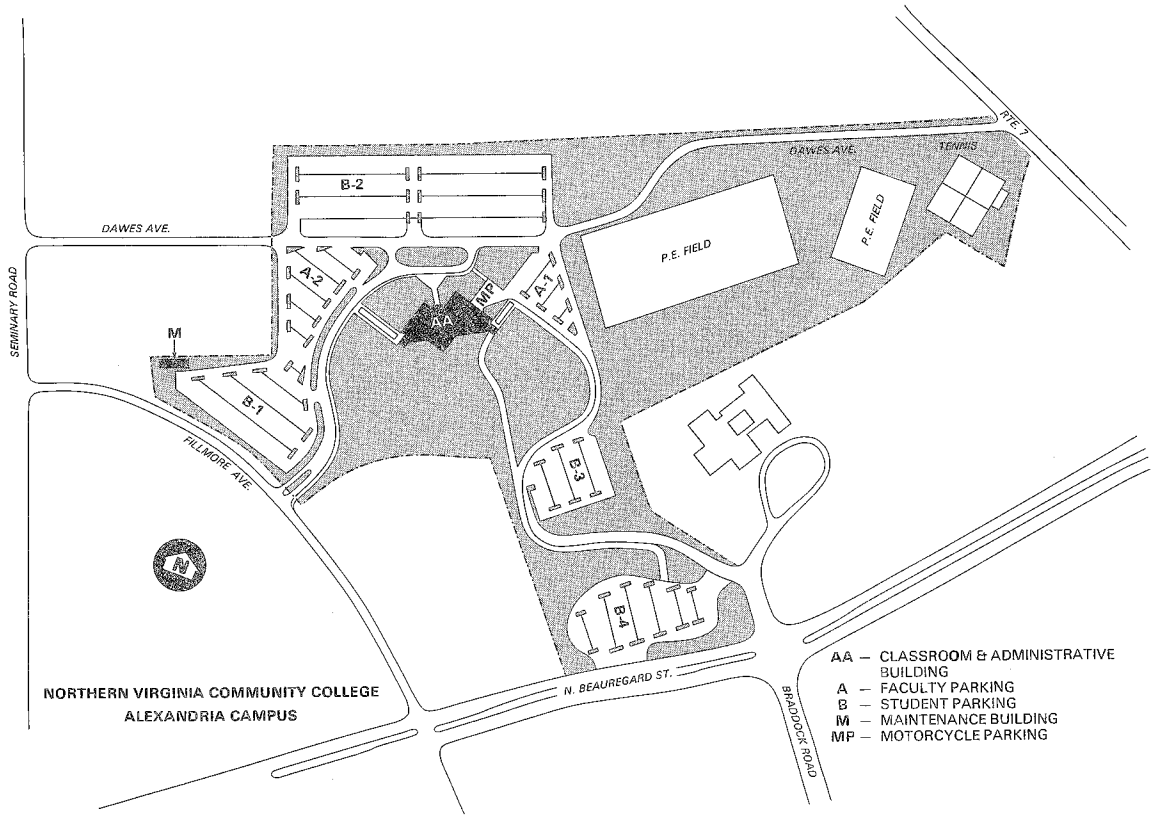
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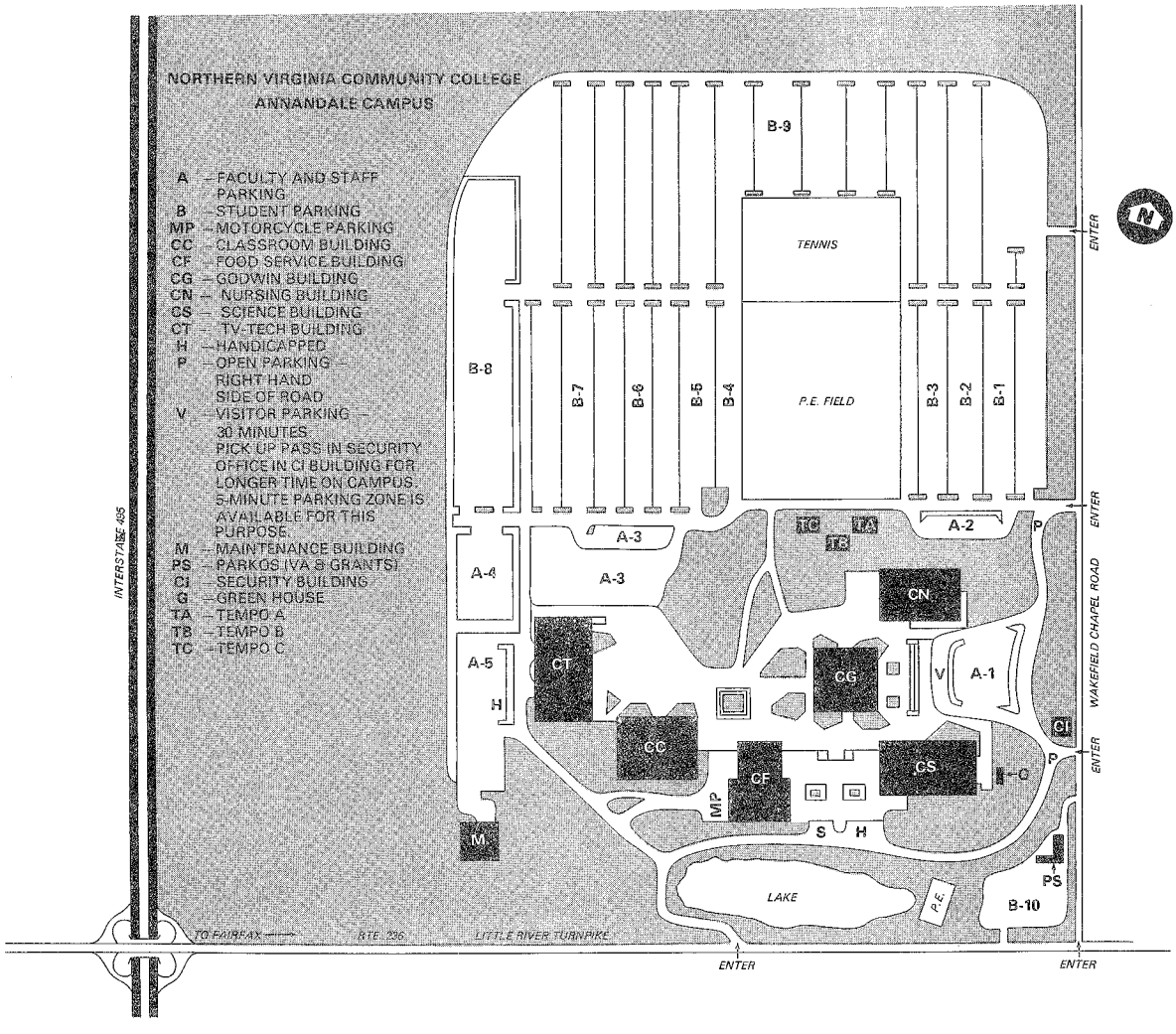
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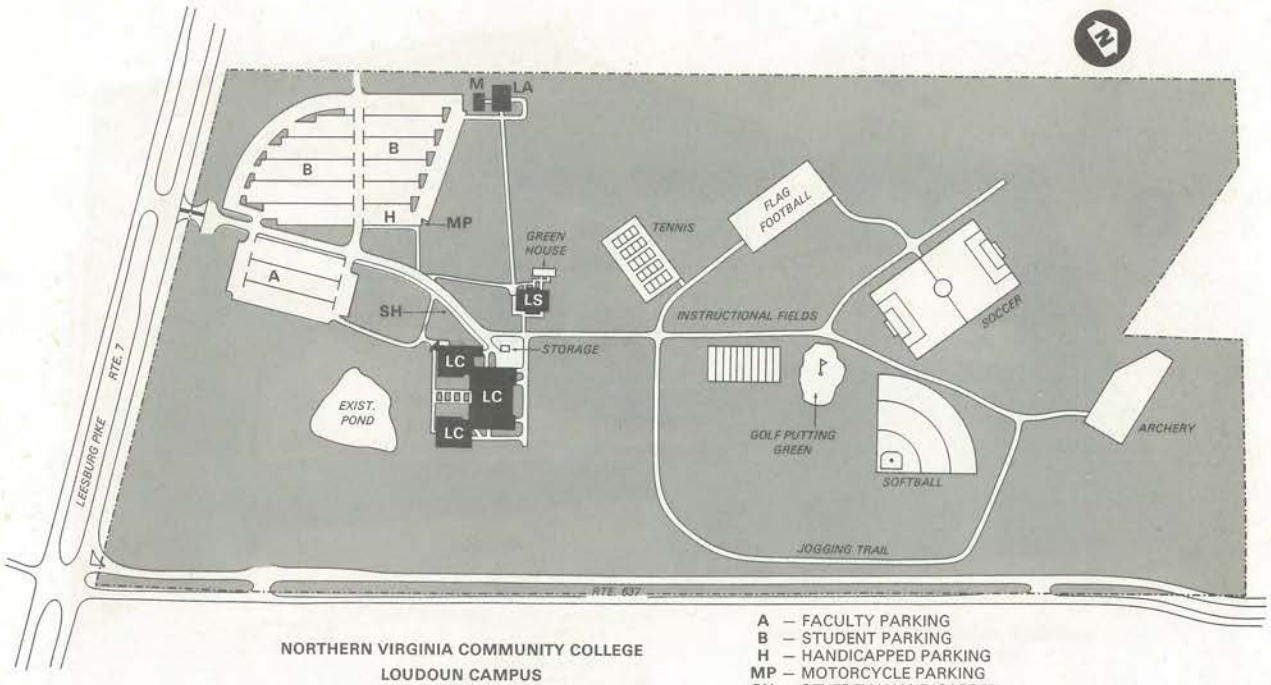

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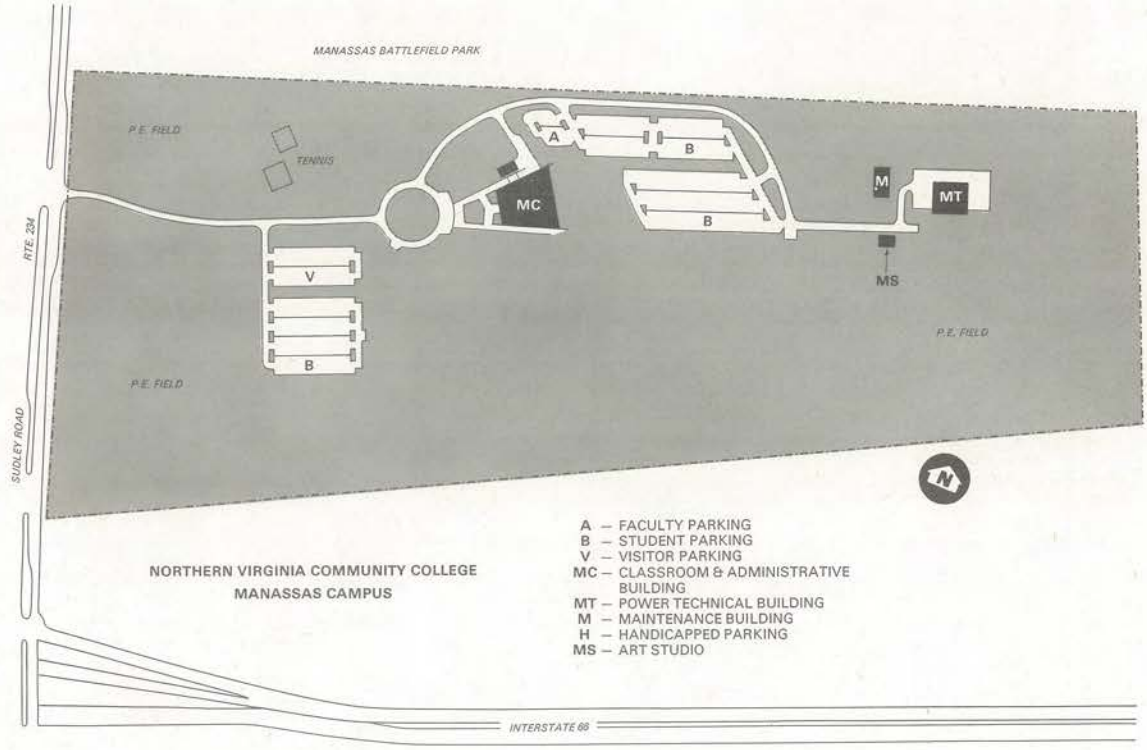
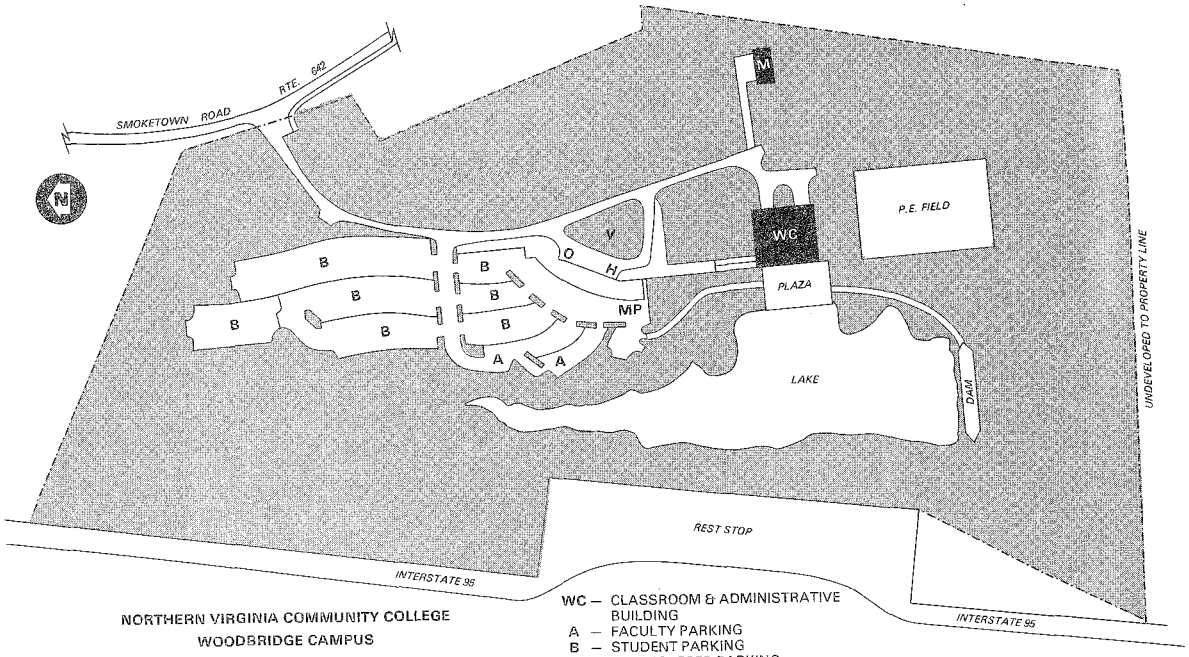
LOUDOUN CAMPUS

A – FACULTY PARKING
B – STUDENT PARKING
H – HANDICAPPED PARKING
MP – MOTORCYCLE PARKING
SH – SEVERELY HANDICAPPED
LC – CLASSROOM & ADMINISTRATIVE BUILDING
LS – SCIENCE BUILDING
M – MAINTENANCE BUILDING
LA – ANIMAL SCIENCE BUILDING



NORTHERN VIRGINIA COMMUNITY COLLEGE
MANASSAS CAMPUS

A – FACULTY PARKING
B – STUDENT PARKING
V – VISITOR PARKING
MC – CLASSROOM & ADMINISTRATIVE BUILDING
MT – POWER TECHNICAL BUILDING
M – MAINTENANCE BUILDING
H – HANDICAPPED PARKING
MS – ART STUDIO



NORTHERN VIRGINIA COMMUNITY COLLEGE
WOODBRIDGE CAMPUS

WC — CLASSROOM & ADMINISTRATIVE BUILDING
A — FACULTY PARKING
B — STUDENT PARKING
H — HANDICAPPED PARKING
M — MAINTENANCE BUILDING
MP — MOTORCYCLE PARKING
O — OFFICIAL PARKING
V — VISITOR PARKING

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