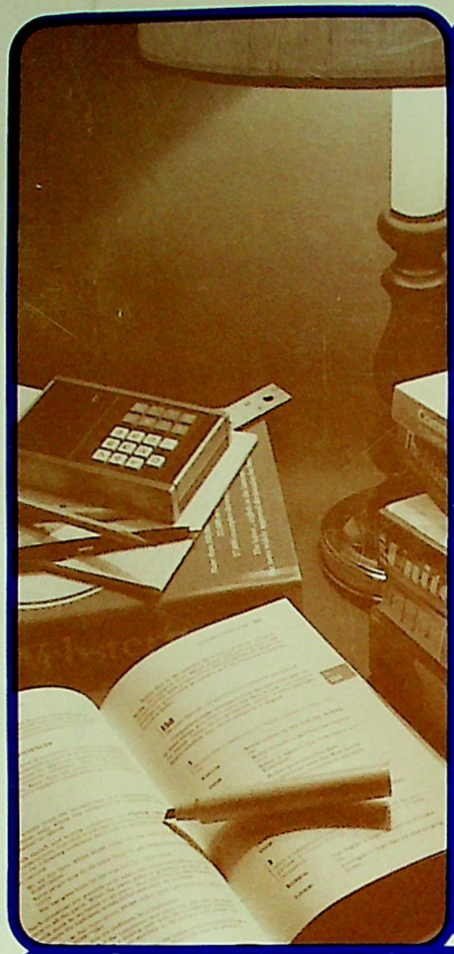
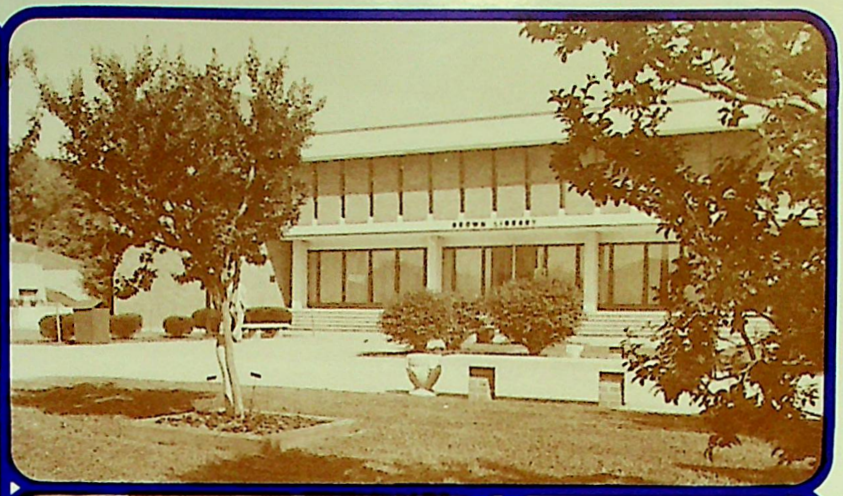




Virginia Western Community College

Catalog

1986-87

PROGRAMS OF STUDY

Accounting—AAS
Administration of Justice—AAS
Air Conditioning and Refrigeration—C
Air Conditioning and Refrigeration—CS
Architectural Drafting—C
Architectural Drafting—CS
Architecture Technology—AAS
Automotive Analysis and Repair—D
Automotive Mechanics—CS
Automotive Technology—AAS
Basic Electricity/Electronics—CS
Business Administration—AS
Business Industrial Supervision—CS
Child Care—C
Civil Engineering Technology—AAS
Clerical Studies—C
Clerk Stenographic—C
Commercial Art—AAS
Construction Supervisory Training—CS
Credit Union Aide—CS
Data Processing Technology—AAS
Dental Assisting—C
Dental Hygiene—AAS
Early Childhood Development—AAS
Early Childhood Development—Optional Track
Education—AS
Education Secretary—CS
Electrical/Electronics Engineering Technology—AAS
Electrical/Electronics Technology—AAS (Evening Program)
Electronic Servicing—D
*Electronic Servicing—C
Electronic Servicing—CS
Emergency Medical Assistant—CS
Engineering—AS
Engineering/Technical Assistant—C
Fine Arts—AA
Fire Fighting and Prevention—CS
Floral Design and Indoor Plant Care—CS
General Studies—AS
Horticulture Technology—AAS
  Floriculture
  Landscape/Grower
Landscaping and Outdoor Plant Care—CS
Legal Aide—CS
Legal Assistant—C
Liberal Arts—AA
Management—AAS
  Banking and Finance
  Merchandising
  Real Estate
Mechanical Engineering Technology—AAS
Medical Assistant—CS
Medical Transcriptionist—C
Mental Health—AAS
  Clinical Track
  Optional Track
Metal Processing—CS
Nursing—AAS
Nursing Assistant—CS
Office Systems Technology—AAS
  Executive Secretary
  Legal Secretary
  Medical Secretary
  Word Processing
Radio and Television Production—AAS
Radiography—AAS
Savings and Loan Administration—C
Savings and Loan Assistant—CS
Science—AS
  Computer Science
Welding—C
Welding Practice—CS
Word Processing—CS

AA—Associate in Arts Degree
AS—Associate in Science Degree
AAS—Associate in Applied Science Degree
D—Diploma
C—Certificate
CS—Career Studies
*Pending Approval

VIRGINIA WESTERN COMMUNITY COLLEGE

3095 Colonial Avenue, S.W.
Roanoke, Virginia 24015

CATALOG 1986-87

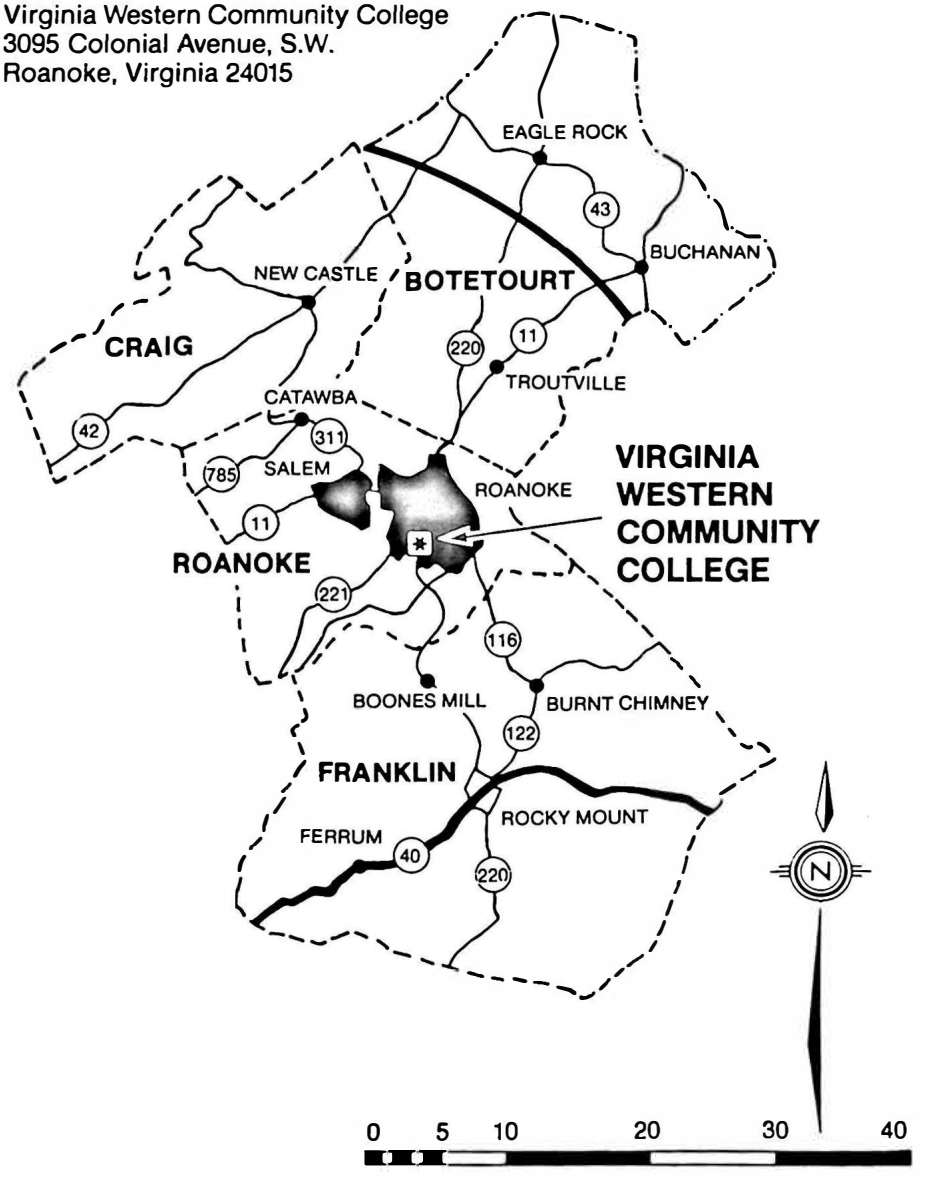
20 VWCC YEARS OF SERVICE TO THE COMMUNITY 1966-1986

Admissions	**(703) 982-7231**
Business Office	**(703) 982-7201**
Continuing Education	**(703) 982-7281**
Counseling	**(703) 982-7237**
Financial Aid	**(703) 982-7331**

CONTENTS

Virginia Western Community College Area

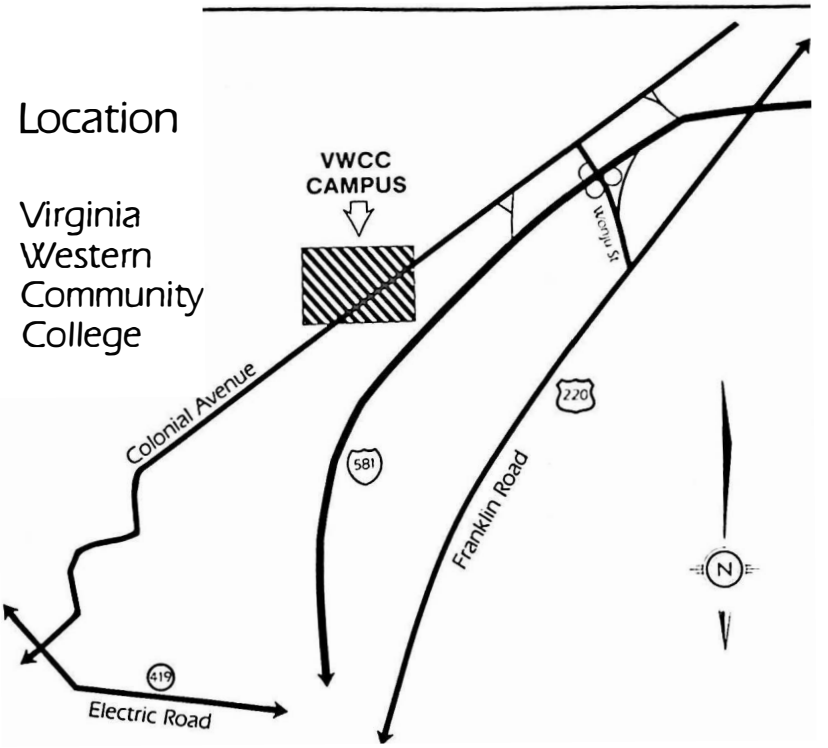
Dr. Charles L. Downs, President
Virginia Western Community College
3095 Colonial Avenue, S.W.
Roanoke, Virginia 24015

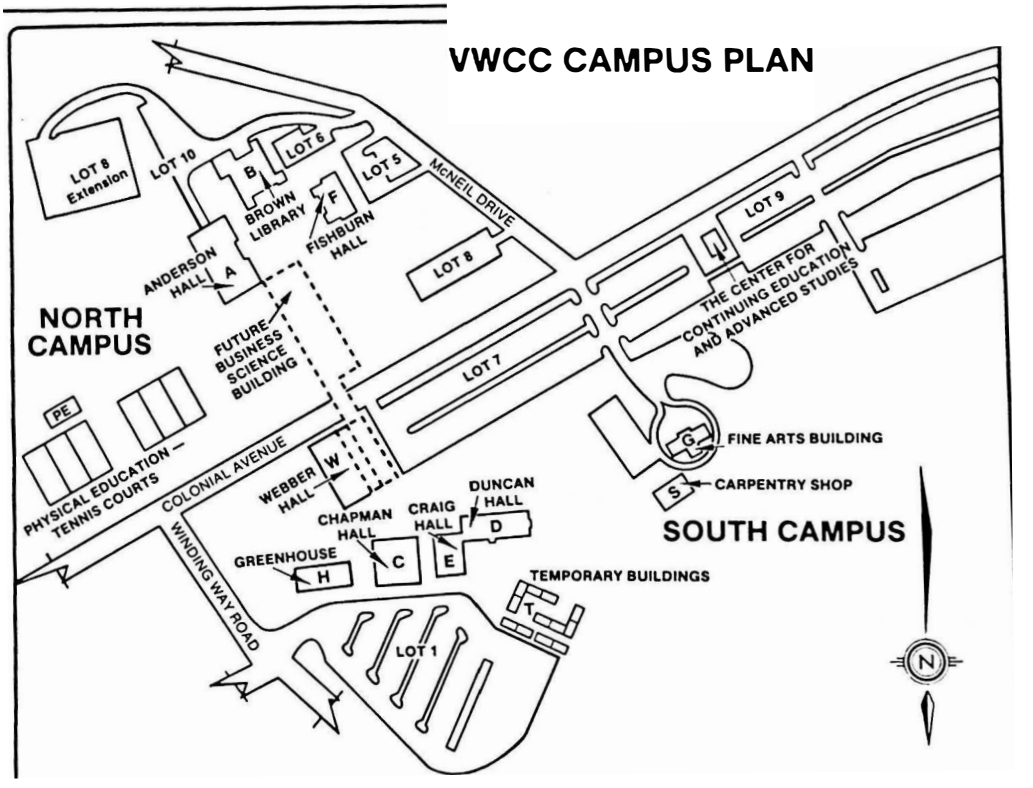


MAPS

Location

Virginia Western Community College





BUILDINGS:

A	Anderson Hall
B	Brown Library
C	Chapman Hall
D	Duncan Hall
E	Craig Hall
F	Fishburn Hall
G	Fine Arts Building
H	Greenhouse
W	Webber Hall
PE	Physical Education
T	Temporary Buildings
S	Carpentry Shop

PARKING LOTS:

1	Students & Faculty
5	Reserved & Visitors
6	Reserved
7	Students, Faculty, & Visitors
8	Faculty & Staff
8	Faculty & Staff (extension)
9	Students
10	Special Permit

COLLEGE CALENDAR

— For Full 11-Week Quarters —

NOTE: Classes less than 11 weeks in length begin at various times throughout the year.

SUMMER QUARTER 1986

June

S	M	T	W	T	F	S
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					

July

S	M	T	W	T	F	S
		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		

August

S	M	T	W	T	F	S
					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						

September

S	M	T	W	T	F	S
	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				

Registration Begins ..... May 12
Classes Begin ..... Jun 16
Last day to register, add, drop, and receive refund ..... Jun 25
Last day to withdraw and receive a "W" ..... Jul 25
Classes End ..... Aug 27
Graduation ..... Aug 29

FALL QUARTER 1986

September

S	M	T	W	T	F	S
	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

S	M	T	W	T	F	S
			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	

November

S	M	T	W	T	F	S
						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						

December

S	M	T	W	T	F	S
	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 Begins ..... Aug 11
Classes Begin ..... Eve Sep 17
Day Sep 18
Last day to register, add, drop, and receive refund ..... Sep 26
Last day to withdraw and receive a "W" ..... Oct 28
Thanksgiving Break ..... Nov 27-30
Classes End ..... Eve Dec 2
Day Dec 3
Exams ..... Eve Mar 16, Mar 19
Day Mar 17, Mar 20

WINTER QUARTER 1987

January

S	M	T	W	T	F	S
				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

S	M	T	W	T	F	S
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

March

S	M	T	W	T	F	S
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 Begins ..... Nov 10
Classes Begin ..... Eve Jan 5
Day Jan 6
Last day to register, add, drop, and receive refund ..... Jan 14
Last day to withdraw and receive a "W" ..... Feb 13
Classes End ..... Eve Mar 13
Day Mar 16
Exams ..... Eve Dec 3, Dec 9
Day Dec 4, Dec 9

SPRING QUARTER 1987

March

S	M	T	W	T	F	S
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				

April

S	M	T	W	T	F	S
			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		

May

S	M	T	W	T	F	S
					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						

June

S	M	T	W	T	F	S
	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				

Registration Begins ..... Feb 23
Classes Begin ..... Eve Mar 25
Day Mar 26
Last day to register, add, drop, and receive refund ..... Apr 3
Last day to withdraw and receive a "W" ..... May 5
Classes End ..... Eve Jun 2
Day Jun 3
Exams ..... June 3-9
Graduation ..... June 12

Part I

GENERAL INFORMATION

THE COLLEGE

Virginia Western Community College is a two-year institution of higher education established under a state-wide system of community colleges in the Commonwealth of Virginia, and serving an area within driving distance of the City of Roanoke. This includes the cities of Roanoke and Salem, the southern portion of Botetourt County, the northern portion of Franklin County, and the counties of Craig and Roanoke. The areas covered have a population of approximately two hundred fifty thousand.

The College operates under the policies established by the State Board for Community Colleges and with the support and advice of a local Community College Board. It is financed primarily by State funds supplemented by Federal funds and by contributions from the various local political subdivisions, individuals, and businesses.

From an initial enrollment of 1,352 students, the College has grown to an enrollment of 6,260 supported by 137 full-time and 40 part-time faculty.

LOCATION AND FACILITIES

Virginia Western Community College is located on a 70-acre campus in Southwest Roanoke at 3095 Colonial Avenue.

The South Campus has five buildings, four of which were acquired in 1966 from the Roanoke Technical Institute. Weber Hall, the Occupational/Technical Building, was dedicated on September 26, 1980, by Govenor John N. Dalton.

Chapman Hall houses laboratories for Civil and Mechanical Engineering Technology Programs, Photography, and Radio and Television Production. General classrooms are located in Craig Hall, as well as the Data Processing Terminal Room and Microcomputing Laboratory. Duncan Hall contains facilities for Nursing and Radiologic Technology Programs, in addition to general classrooms. The Fine Arts Center is occupied by the Music and Fine Arts departments. Webber Hall houses the Bookstore, Automotive Technology and Welding Programs, and laboratories for Architectural Drafting and Engineering Graphics. In addition, three temporary buildings provide space for the Child Development Education Program, Humanities Division, Writing Center, Human Services, Special Services, and for faculty offices.

A 2100-square-foot greenhouse is located on the South Campus.

The Center for Continuing Education and Advanced Studies is located on the South Campus.

The North Campus has three buildings surrounding a mall planted with shrubs selected to bloom alternately in each of the four seasons. The campus was dedicated on October 23, 1969, and its buildings were named for men influential in education or in the development of the Southwestern Virginia region.

Fishburn Hall, the Administration building, houses the offices of the President and the Dean of Academic and Student Affairs, the Business Office, and the Personnel Office, as well as other administrative offices.

Opposite is the Science Building, Anderson Hall, containing a Dental Laboratory, Reading Laboratory, Math Center, Veterans' Affairs, classrooms, and faculty offices. In the center is Brown Library with a Learning Laboratory, Language Laboratory, and Auditorium on the second floor. The Admissions and Records Offices, Counseling Center, Career Life Development Center, Placement Office, Student Activities and Student Government Office are on the ground floor.

The Business Science Building, alongside Colonial Avenue, contains data processing instructional areas, the Computing Center, secretarial sciences and word processing classrooms, the management and accounting laboratory, and faculty and staff offices. A cafeteria, auditorium, drama and speech classroom, and a theater workshop are also located in this building.

The College's six-court lighted tennis facility is located on the North Campus.

HISTORY

Since 1927, the Extension Division of the University of Virginia, its programs under the direction and supervision of the University, served students in the Roanoke Valley. In 1960, the area's educational opportunities

were expanded by establishment of the Roanoke Technical Institute, its programs an extension of Virginia Polytechnic Institute. In February 1966, by authorization of the General Assembly of Virginia, these two facilities were combined into the comprehensive institution of higher education now known as Virginia Western Community College with the University of Virginia continuing to offer its upper division program.

PURPOSE

Virginia Western 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 his awareness of his role and responsibility in society. The College is devoted to serving the educational needs of its community and assumes a responsibility to help meet the requirements for trained manpower in the region through a cooperative effort with local industry, business, professions, and government.

Various opportunities are available for post-high school age youth and adults. These include high quality instructional programs at the associate degree level and at the preparatory or foundations level. A strong guidance and counseling program and other student services are provided to help each student make sound decisions regarding his occupational, educational, and personal-social plans.

Virginia Western 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. Programs include:

1. **Occupational-Technical Education.** The occupational and technical education programs are designed to meet the increasing demand for technicians, semiprofessional 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. **University Parallel-College Transfer Education.** The university parallel-college transfer program includes college freshmen and sophomore courses in arts and sciences and preprofessional 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 member of a family, a worker, a consumer, and a citizen.
4. **Career Studies.** The Career Studies Program is designed to meet the short-term training needs of the adult part-time students. Under the program the student may select an option which is composed of a core of college credit courses which focus on a particular field or area of study. The options normally are offered during the evening at a rate of one or two courses per quarter. Each option represents a distinct "mini-curriculum" in a specialized area. The work necessary to complete an option amounts to the equivalent of one to three quarters of full-time college work. Upon satisfactory completion of an option the graduate will be awarded the Certificate in Career Studies. Many of the courses offered through this program can be used also to satisfy degree requirements in certificate and associate degree programs.
5. **Continuing Adult Education.** The adult education programs enable the adults in the region to continue their learning experiences. This work includes both degree credit and non-degree credit work during the day and evening hours.
6. **Cooperative Education Programs.** The cooperative education programs are designed to enrich the student's total development by integrating classroom study with well-planned and supervised practical work experience.

   The programs provide a solid foundation for career planning and vocational guidance by giving the student the opportunity to gain an understanding of the work related to his career objectives.
7. **Developmental Programs.** The developmental programs help prepare individuals for admission to the occupational-technical program and to the university parallel-college transfer program in the community college. These programs are designed to help the individual develop

the basic skills and understanding necessary to succeed in other programs of the community college.

8. **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, speakers bureau, and special community projects which are designed to provide needed cultural and educational opportunities for the citizens of the region.
9. **Special Training Programs.** Special training may be provided where specific job opportunities are available for new or expanding industries. This special training shall be coordinated with Virginia's economic expansion efforts and with the needs of employers.

EDUCATIONAL FOUNDATION

All gifts, grants, or donations; tangible or intangible; cash, securities, or real property received by and specifically designated for Virginia Western Community College by the giver, grantor, or donor, are deposited in the College's non-profit and charitable Educational Foundation, Inc.

RECOGNITION

The College is a division of the Virginia Community College System and is approved by the State Board for Community Colleges and by the Virginia Community College System in Virginia. The Associate Degree Programs of the College have also been approved by the State Council of Higher Education for Virginia. The College was given full academic accreditation by the Southern Association of Colleges and Schools in December 1969. This accreditation was reaffirmed in December 1983.

The College has institutional membership in the American Association of Community and Junior Colleges and has been approved by the Veterans Administration for V.A. assistance and by the U.S. Office of Education for various federally funded programs.

The College is listed among the approved institutions of higher education in the Education Directory of the U.S. Office of Education.

Part II

ADMINISTRATIVE INFORMATION

GENERAL ADMISSION TO THE COLLEGE

ELIGIBILITY

Any person who has a high school diploma or the equivalent, or who is 18 years of age, and in any case is able to benefit from a program at the College, may be admitted as a curricular student when the following items have been received by the Office of Admissions:

1. A completed "Application for Admission."
2. Official transcripts from all high schools, colleges and universities attended.

For all non-curricular students, the following items are required:

1. A completed "Application for Admission."

The College reserves the right to evaluate special cases and to refuse admission to the applicants when considered advisable in the best interest of the College.

Each student who wants to enter a curriculum of study will be required to meet with a college counselor prior to admission to (a) discuss educational interests, (b) determine what tests may be needed, (c) plan admission to a specific curriculum or program, and (d) examine other reasonable standards to insure that the applicant possesses the potential to meet program requirements.

Students entering the College may be required to take a diagnostic test battery. The test battery is normally administered at the College prior to registration and is used to assist the counseling staff in placing students in an appropriate level of instruction.

Persons wishing to apply for the non-credit community service programs should contact the College's Office of Continuing Education for additional information.

RESIDENCE REQUIREMENTS

Applicants will be required to sign a residence affidavit to determine state residency eligibility for tuition purposes. Questions concerning residency requirements should be directed to the Coordinator of Admissions and Records.

ADMISSION OF INTERNATIONAL STUDENTS

In addition to the general requirements of the College, all international students must demonstrate proficiency in both written and spoken English.

Written English proficiency may be demonstrated by submitting acceptable scores on the "Test of English as a Foreign Language" (TOEFL—administered by the College Entrance Examination Board, Princeton, N.J.). A combined score of 450 on the TOEFL is the minimum required to be considered for admission.

If these preliminary scores are acceptable, the applicant must also demonstrate proficiency both in speaking and understanding the English language. If a personal interview at the College is not possible, a letter which testifies to the student's oral proficiency will be acceptable. This must be executed by an official of the U.S. Government residing in the student's native country. TOEFL scores must be submitted along with the application.

All current policies of the U.S. Immigration Department state that international students must show proof of how financial responsibility will be met. All other immigration policies must also be satisfied.

ADMISSION OF SENIOR CITIZENS

Under the Virginia "Senior Citizens Higher Education Act of 1974," amended in 1977, anyone who is over 60 years of age, who is a legal resident of Virginia, and whose taxable income does not exceed $7,500, is eligible to enroll in credit courses at the College without charge. Those senior citizens whose taxable income exceeds $7,500 may audit a maximum of three 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, senior citizens will be accommodated on a space available basis (after all tuition-paying students have registered) commencing with the announced late registration period.

ADMISSION TO SPECIFIC CURRICULUMS

The specific requirements for each curriculum in the College are listed in the Curriculum

Offerings section of the catalog. The College reserves the right to make changes in program and/or course requirements. A current Curriculum Guide Sheet (form C-3), detailing elective and required courses, is available to each student from Counseling Services. Any deviation requires divisional approval. 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 a developmental studies program and/or prerequisites.

TRANSFER BETWEEN CURRICULUMS

A student who wishes to transfer from one program or curriculum to another should discuss this with the advisor, obtain the advisee folder, and see a counselor who will make the change.

STUDENTS TRANSFERRING WITHIN THE VIRGINIA COMMUNITY COLLEGE SYSTEM

When a student transfers from one community college to another within the System, his grades and grade-point average (GPA) are transferred with his record. His quality points for the courses previously taken are utilized in the computation of his grade-point average (GPA).

STUDENTS TRANSFERRING FROM OTHER COLLEGES

Students transferring to Virginia Western Community College have to complete an application and mail or bring it to the Admissions Office.

Transfer students should have official transcripts from all colleges attended mailed directly to the Admissions Office, Virginia Western Community College, P.O. Box 14065, Roanoke, VA 24038.

If a transfer student is ineligible to return to a particular curriculum in a college previously attended, generally he will not be allowed to enroll in the same curriculum at Virginia Western until two quarters elapse or until he completes an approved developmental program at the College. Special conditions for the admission of such students, including placement on probation, will be imposed as deemed appropriate by the College.

Generally no credit will be given for courses with grades 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.

It is important that a student who wishes to transfer to Virginia Western Community College submit the application and all transcripts early. This will facilitate registering without unnecessary delay.

WAIVER OF REQUIREMENTS

Students who have reason to believe that previous educational studies, training programs, work experience or test results may entitle them to an adjustment in the course requirements for a particular curriculum should contact the Coordinator of Admissions and Records to determine procedures before registering for classes.

ADVANCED PLACEMENT

Many area secondary schools offer courses to students through the Advanced Placement Program, giving them the opportunity to complete college level work while attending high school.

Virginia Western Community College grants college course credits in several subject areas to students who scored 3 or higher on Advanced Placement examinations.

Students who are eligible for advanced placement should contact the Office of Admissions and Records.

CREDIT BY EXAMINATION

Virginia Western Community College students may be awarded college credit if they can demonstrate that previous educational study, training, or work experience entitles them to advanced standing in a course. Therefore, the time required to complete a particular curriculum of study may be shortened by one or more quarters.

The College participates in the nationally recognized

Advanced Placement Program (AP)

College Level Examination Program (CLEP)

American College Testing Proficiency Examination Program (PEP)

Also, locally prepared examinations are generally available for any course offered through the College. Persons desiring to earn college credit through examination are encouraged to contact Counseling Services.

Normally, local examinations are not given

when national exams are available. Many senior institutions do not accept credit by examination courses for transfer.

CLASSIFICATION OF STUDENTS

All students are classified according to the following categories:

Curricular Student.

A full-time or part-time student working toward completion of an associate degree, diploma, certificate, or developmental program.

Non-curricular Student.

1. A part-time student taking course(s) as audit for no credit;
2. A high school student who, with the permission of his school principal, is concurrently enrolled in a college course;
3. A part-time student not enrolled in an associate degree, diploma, or certificate program who may be taking a course(s) for credit;
4. A student who has not yet fulfilled all of the requirements as a curricular student but who is admitted under special consideration by the Admissions Committee of the College. It is expected that such students would fulfill all requirements within 10 days of the commencement of the quarter or face dismissal from the College.

Full-time Student. A student is considered a full-time student if he is carrying 12 or more course credits. **NOTE:** A student wishing to complete his degree on schedule should take 16-18 credits per quarter.

Part-time Student. A student is considered a part-time student if he is carrying less than 12 course credits. A part-time student carrying 6,7 or 8 credits is considered half-time.

Freshman. A student is classified as a freshman until he has completed 45 course credits in his designated curriculum.

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

STUDENT PERMANENT RECORD

The Office of Admissions and Records at Virginia Western Community College maintains files on each student attending, or who has attended, the College. These files are kept for at least three years and contain the following:

1. High school transcripts
2. Other college transcripts and evaluations
3. VWCC permanent record card
4. Correspondence with student
5. Grade change forms
6. Requests for Transcripts
7. Schedule change forms
8. Registration identification forms

The Coordinator of Admissions and Records is the official in charge of student records. Administrators, counselors, and faculty who have need to see student records to assist an individual in his academic pursuits have access to these records. Clerical employees in Admissions and Counseling Services originate and maintain student records. College personnel involved in institutional research may be permitted access to records on a need-to-know basis. All others are required to have a written permission from the student.

The student's permanent record card is microfilmed and all other records may be destroyed after a student has not been in attendance for several quarters. A student can review his file by making a request to the Coordinator of Admissions and Records who will arrange to review the file with the student.

If a student finds that statements or other information contained in his file are — to his knowledge — incorrect, the following procedure should be followed to clarify the situation.

A. The student will call the Coordinator's attention to any possible errors.
B. If the Coordinator finds the item or items to be in error, he will initiate corrective action.
C. If the Coordinator cannot resolve the problem, it will be referred to the Dean for review and further action. The student will be informed of any action taken.

Students should request action as soon as possible. A record becomes permanent after three years.

Students may obtain copies of information from their file by paying a copying charge of 25¢ per page within a minimum of $1.00 applicable. The cost applies to each request.

The information considered "Directory Information" and, therefore, available to anyone requesting such information shall include the following:

A. Name and address
B. Name of program
C. Quarters in attendance

EXPENSES

Tuition

Student tuition is paid on a credit hour basis. The typical full-time academic load is between 16-18 credits. College approval is required to enroll for more than 18 credits per quarter.

The 1986-87 academic year tuition set by the State Board for Community Colleges is:

In-state .....$17.00 per credit
Out-of-state .....$81.00 per credit

Payment of tuition enables the student to use the library, bookstore, and other facilities of the College.

Tuition Refunds

1. Students shall be eligible for a refund for those credit hours officially dropped during the add/drop period for the session. The refund will be at the full credit rate for those credits dropped. After the add/drop period for the session has passed, there will be no refund.
2. Eligibility
   a. The student must complete a withdrawal form and obtain the appropriate signatures.
   b. The form must be completed in the time frame described.
   c. The student must deliver the form to the Admissions and Records Office and have it receipted and dated. This date is the official withdrawal date.

Fees and Charges

A college Services Fee of $1.00 per student per quarter will be charged effective Fall Quarter 1986. This fee is payable with tuition and is non-refundable.

There may be special fees for Physical Education, Credit by Examination, etc. Students who damage or lose school property will be expected to pay charges for such losses.

Student Accounts

No transcripts, certificates, diplomas, or degrees will be issued, nor will students be permitted to complete registration, until accounts are satisfactory to the Business Office, Bookstore, and Library.

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 $150 per quarter for the full-time student. This cost is subject to change since it is based on publishers' and suppliers' listed prices.

The Bookstore carries a complete line of textbooks, supplies, art material and general merchandise.

Rules for Bookstore Refunds

The Bookstore Manager is the only authorized person who can accept books for refund. Books returned for refund are subject to inspection and must be in new condition with no markings or other damage. The book must be presented to the Bookstore Manager within two weeks from date of purchase (date shown on cash register receipt) to be considered for a refund. Refunds are made by check which will be mailed to the student.

Refunds will be made only if the course is cancelled, or dropped (drop slip must be presented), or the incorrect book is purchased. All books with misprint, pages missing, or other publishing mistakes may be exchanged at any time for the same book by presenting the cash register receipt.

Suspension of Student for Nonpayment of Tuition and Fees, College Loans, College Fines, or Other Debts Owed the College

A student's continued attendance at the College is dependent upon proper settlement of all debts owed the institution. Should the student fail to satisfy all due and payable amounts for tuition and fees, college loans, college fines, or other debts owed the College, **the student may be suspended immediately.** If suspended, no student will be allowed to register in any succeeding quarter

until all current debts owed to the College have been satisfied.

FINANCIAL AID

Virginia Western Community College endorses the philosophy that no student shall be denied an opportunity to pursue post-secondary education due to the lack of financial resources. Paramount to this philosophy is the assumption that the student and his family shall contribute to the costs of that education up to the limits of their capacity to do so. However, should such contribution be insufficient to meet the total costs, the student normally is deemed eligible to receive financial assistance from the College. The expected family contribution is determined through a federally approved method of need analysis. Financial aid can be provided to cover both direct expenses, such as tuition and books, and indirect expenses, such as transportation, room, and board.

Application Procedure

In order to secure financial aid, the student should apply for admission to the College at the Office of Admissions and complete an "Application for Federal Student Aid", which can be obtained in the Financial Aid Office. This form must be submitted to Federal Student Aid Programs, P.O. Box 4121, Iowa City, IA 52244.

A *Financial Aid Handbook,* providing detailed information on the College's financial aid programs, is available upon request from the Financial Aid Office.

Types of Financial Assistance

Virginia Western Community College participates in a variety of financial aid programs, including the following:

Federal:

1. Pell Grant Program
2. College Work-Study Program
3. Supplemental Educational Opportunity Grant Program
4. Guaranteed Student Loan Program
5. Veterans Administration Educational Benefits Program
6. Parental Loans for Undergraduate Students (PLUS) Program

Commonwealth of Virginia:

1. College Scholarship Assistance Program
2. General Assembly Nursing Scholarship Program
3. State Law Enforcement Officer's Educational Program
4. Department of Vocational Rehabilitation Educational Benefits Program
5. Virginia War Orphans Education Program

Institutional:

Each year, Virginia Western Community College provides several academic scholarships to graduating high school seniors within its service region. Interested students are asked to discuss the scholarships with a high school counselor.

Private:

Several scholarships are available from private donors, normally based upon a combination of a student's financial need and potential to demonstrate high academic achievement. In most cases, these are limited to students within specified curricula (electrical engineering technology, nursing, etc.).

War Orphans Education Program

The Virginia War Orphans Education Program provides educational assistance for children, or surviving children, of certain veterans or service personnel. Information on basic eligibility requirements is available in the Veterans' Affairs Office.

G.E. Matheny Scholarship

The faculty of the biology department has established the G.E. Matheny Biological Scholarship in honor of Colonel Matheny, a former member of the department. The scholarship is awarded in the spring to a sophomore student majoring in a program which leads to a baccalaureate degree in a field of biology. Students interested in applying for the award should speak with the chairman of the Division of Natural Sciences and Mathematics.

ACADEMIC REGULATIONS

NORMAL ACADEMIC LOAD

The normal academic load is 15-17 credits. The minimum full-time load is 12 credits and the normal maximum full-time load is 18 credits. To carrry an academic load of more than 18 credits, students should have a 3.0

average or higher and must have the approval of the Coordinator of Admissions and Records or the Coordinator of Counseling.

CREDITS

Usually one credit for a course is given as follows:

1. One hour of in-class lecture plus an average of two hours of out-of-class study, or
2. Two hours of laboratory or shop study plus an average of one hour of out-of-class study or
3. Three hours of laboratory or shop study with no regular out-of-class assignments.

Fixed credit hours are assigned to most college courses.

Variable credit (1-5 credits) is assigned to all Supervised Study, Seminar and Project, Coordinated Internship and Cooperative Education Courses.

REPEATING A COURSE

If a course is repeated once or more for credit, only the last repetition is counted toward graduation. All grades are included on the permanent record.

EXAMINATION

All students are expected to take their examinations at the regularly scheduled times. No exceptions will be made without the permission of the Dean and the instructor of the class.

Attendance

Registration in a course presupposes that students will attend scheduled classes and laboratory sessions. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence. Frequently unexplained absences may result in dismissal from a course.

The student is responsible for making up all work missed during an absence. If a student cannot take a test or the final examination at the scheduled time, he should contact the instructor prior to the test period. If he is unable to reach the instructor, he should contact the division office.

The policy on attendance and make-up examinations is generally the prerogative of each instructor. Instructurs will provide students with a statement of their attendance policy during the first class meeting of each quarter. When the number of unexcused absences reaches a sum equivalent to thirty percent of the total instructional time (e.g., three weeks in a ten week course), the instructor may drop the student from class. Students who are dropped from a class because of a lack of attendance will be assigned a "W" grade if the drop is made during the first six weeks of the quarter. After that time, a grade of "F" will be assigned in non-developmental courses and a grade of "R" or "U" in developmental courses. No-shows, in all cases, will be awarded a "W"

Change of Registration

Students should follow established procedures for making any changes in their programs after registration. Failure to do so could place their college record in jeopardy.

1. Withdrawal from a course:

A student does not receive a "W" automatically if he stops attending class. HE MUST FILE a Student Schedule Change Form with the Office of Admissions and Records.

2. Addition of a course:

Students may add classes by following the procedures published in the quarterly supplement to the College Catalog: Schedule of Classes.

3. Withdrawal from the College:

A student who wishes to withdraw from the College should contact a counselor to determine the appropriate procedure.

A three-quarter history of withdrawals, either student or instructor initiated, whether at the developmental or college level, constitutes a lack of normal progress. Such action may subject the student to Academic Suspension.

ACADEMIC STANDING

The College keeps students informed of their academic standing. A statement will be placed on their Grade Report if they are academically deficient and when they have regained acceptable academic standing. The College will assist students to increase their effectiveness in meeting the academic standards of the institution and to ultimately attain graduation. Students are expected to maintain a 2 (C) grade point average to be making normal academic progress toward graduation.

Academic Warning

Any student who fails to attain a minimum grade point average of 2 for any quarter, or who fails any course, will receive an "Academic Warning."

Academic Probation

Any student who fails to maintain a cumulative grade point average of 1.5 will be placed on academic probation until such time as his average is 1.5 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 a counselor prior to class registration. A student pursuing a degree program is cautioned that, although an average between 1.5 and 1.99 may not result in formal academic probation, a minimum of 2 in this curriculum is a prerequisite to the receipt of an associate degree. Students shall be placed on probation only after they have attempted twelve quarter credit hours. (Note: The College reserves the right to place other students on probation where circumstances warrant.)

Academic Suspension

The student on academic probation who fails to attain a grade point average of 1.5 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 his 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. Students will be placed on suspension only after they have attempted twenty-four (24) quarter credit hours (Note: The College reserves the right to suspend other students where circumstances warrant.)

Academic Dismissal

Students who have been placed on academic suspension and achieve a 2 grade point average for the quarter following their instatement must maintain at least a 1.5 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 1.5. Failure to attain a 1.5 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.

ACADEMIC HONORS

At the end of each quarter the Dean's List is prepared, recognizing all regular full-time students who earned a grade-point average of 3.2 or better. Regular full-time students who earned a grade-point average of 3.5 or better are placed on the President's Honor Roll. The College cannot be responsible for newspaper publicity of these lists.

Students who have attended a VCCS community college for a minimum of 45 credit hours may be eligible for graduation honors. Appropriate honors based on the overall academic achievement at Virginia Western Community College are as follows:

3.2 Cum laude (with honor)

3.5 Magna cum laude (with high honor)

3.8 Summa cum laude (with highest honor)

ACADEMIC INTEGRITY

Academic integrity is of the utmost importance to the College. Information on academic dishonesty is given in the *Student Handbook.*

GRADING SYSTEM

The quality of performance in any academic course is reported by a letter grade, the assignment of which is the responsibility of the instructor. These grades denote the character of study and are assigned quality points as follows:

A Excellent—4 grade points per credit
B Good—3 grade points per credit
C Average—2 grade points per credit
D Poor—1 grade point per credit
F Failure—0 grade points per credit
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 "I" (incomplete) has been awarded should be completed as soon as possible and in all cases must be completed by the end of the sixth week of the next quarter (excluding summer).
R Re-Enroll—No credit. The student is making progress but the course objectives have not been completed; to be used only for Developmental Studies (courses numbered 01—09). Reenrollment for the completion of course objectives may be required.
S Satisfactory—No credit. Student completed course objectives. Applies only to Developmental Studies and non-credit courses.
U Unsatisfactory—No credit. Student is not making satisfactory progress. Applies only to Developmental Studies and non-credit courses.
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. During the add/drop period the registration will be deleted. After the add/drop period and through the sixth week a "W" will be given. After the sixth week the student will receive a grade of "F".
X Audit—No credit. Permission of the Division Chairman is required to audit a course.

NOTE: Deviations from the stated grading policies may be made with the approval of the Dean of Academic and Student Affairs when mitigating circumstances are properly documented.

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. Courses number 01 to 09 are not included.

AUDITING A COURSE

To audit a course, students must obtain permission from the appropriate division chairman prior to registering for the course during the first week of classes.

Audited courses carry no credit and do not count as a part of the student's course load. Students wishing to change status in a course from audit to credit or credit to audit must do so within the add/drop period for the session.

Grade Reports

Final grade reports are mailed to the student after the end of each quarter. Final grades are a part of the student's record and are recorded on the student's permanent report card. Errors should be reported to the Records Office within six weeks of the end of the quarter in which the grade was given. Normally, a change of grade(s) cannot take place after the quarter following the issuance of the grade.

Transcripts

Student transcripts must be requested in writing from the Admissions and Records Office.

There is no charge for an official or unofficial transcript. An official transcript is sent by the College and bears the college seal; an unofficial transcript is given to the student with "Delivered to Student" stamped on it.

DEGREES, DIPLOMAS AND CERTIFICATES

The College offers the following degrees, diplomas, certificates, or career studies certificates for students who successfully complete approved programs at the College.

Degree

An award at the associate level which represents completion of the requirements of a degree program.

1. **Degree Program**

A planned program of study composed of a minimum of 97 quarter hours at the 100 and 200 course levels culminating in a degree.

1. **An Associate in Arts Degree (AA)** is awarded to students majoring in the Liberal Arts. Students receiving an AA generally transfer to four-year colleges or universities.

2. **An Associate in Science Degree (AS)** is awarded to students majoring in specialized curriculums such as Business Administration, Engineering, Education and Science. Students receiving an AS generally transfer to four-year colleges or universities.

3. **An Associate in Applied Science Degree (AAS)** is awarded to students majoring in an occupational-technical curriculum. Students receiving an AAS may elect to transfer to selected four-year colleges or universities or to pursue immediate employment.

Major

A collection of courses and instructional experiences in specific discipline areas that contribute to the preparation and development of students to accomplish the goals and requirements of the degree program under which the major is classified.

Specialization

For majors of degree programs—variation from parent major by 12-18 credit hours in the major area.

2. **Diploma Program**

A two-year program of study (usually 18-24 months in length) with a major in an occupational area which may include courses numbered 10-299.

3. **Certificate Program**

A program of study of less than two years in length with a major in an occupational area with a minimum of 45 credit hours which may include courses numbered 10-299.

4. **Career Studies Program**

A program of study of less than one year in length in an occupational area (less than 45 credit hours) which may include courses numbered 10-299.

GRADUATION REQUIREMENTS

All students must apply for their degree, diploma, or certificate during the add/drop period of their last quarter in attendance. The degree, diploma, or certificate will be awarded if the student is certified for graduation and has met all other requirements. Formal graduation ceremonies are held at the end of spring and summer quarters each year.

Attendance at the formal graduation exercise is required of all students. Request for waiver of this requirement must be submitted in writing to the President of the College for his consideration.

Associate Degree and Diploma Requirements

To be awarded an Associate Degree from the college, a student must:

1. Have fulfilled all of the course requirements of his curriculum as outlined in the College Catalog;
2. Have been recommended for graduation by the appropriate instructional authority in his curriculum;
3. Have completed at least 97 credits applicable to an associate degree of which 20% must be acquired at the College through classroom instruction;
4. Have earned a grade point average of at least 2 on all courses attempted which are applicable toward graduation in his curriculum;
5. Have filed an application for graduation in the Office of Admissions and Records by the required deadline;
6. Have resolved all financial obligations to the College and returned all library and other college materials.

Certificate Requirements

If a student successfully completes a program of instruction which does not lead to an associate degree or diploma, he may be awarded a certificate or a career studies certificate. No less than 50 percent of the class credits must be earned at the College. Also, if he pursues a degree or diploma program but is unable to complete graduation requirements, he may, upon the recommendation of the appropriate instructional division and the Dean be issued a certificate provided the portion of study successfully completed is equivalent to an approved certificate program offered at the College. A curriculum GPA of 2 must be achieved.

Second Degree, Diploma, or Certificate

In awarding students an additional certificate, diploma, or degree, the College may grant credit for all previously completed applicable courses which are requirements of the additional certificate, diploma, or degree.

STUDENT SUPPORT ACTIVITIES

CAREER AND PLACEMENT OFFICE

The College maintains the Career and Placement Office to assist in career development. Information is available for the student who is selecting a college major or trying to determine an occupational direction. Descriptions of thousands of occupations are provided along with salaries and employment outlook in each occupation. It houses information on tuition, program requirements and transfer procedures for students planning to transfer.

Professional counselors provide individual assessments of interests, abilities, and vocational personality.

The office serves as an employment referral service and maintains listings of full-and part-time positions available to students.

COUNSELING SERVICES

Student success is a major goal of Virginia Western with a staff of professional counselors providing advising and counseling services. Counselors give personal assistance to students in regard to information about the college as well as procedures for application, enrollment, and registration. Students will receive help in class selection, choice of a curriculum, and academic matters.

Support services are provided in specialized areas such as career decision making, study skills, career education and personal counseling.

SPECIAL SERVICES

The Student Special Services project at Virginia Western Community College is designed for students with academic potential who by reason of educational, cultural, or economic background, physical handicap or learning disability, are in need of special services to assist them to initiate, continue, or resume their postsecondary education, and to enhance their success in the academic environment. The focus of Special Services is to help qualified students (part-time and full-time) to remain in and successfully complete college.

Services available include tutoring, career counseling, personal counseling, assistance in obtaining financial aid, academic counseling, cultural activities, and individualized assistance as needed.

SERVICES FOR THE HANDICAPPED

Persons with a physical disability who are considering applying for admission on a full- or part-time basis should schedule an appointment with a Special Services counselor and a tour of the campus to discuss program accessibility and the needs of the individual. Handicapped applicants who plan to enroll in the College are encouraged to advise the Special Services counselor of their need for auxiliary aids, readers, interpreters, taped materials or other services and devices as far in advance as possible before classes begin.

STUDENT ACTIVITIES

The Student Activities program is based on the belief that a complete college experience involves not only the development of academic and/or vocational competencies, but also the development of personal and interpersonal competencies and interests.

The Student Activities Office works closely with the academic divisions providing educational, cultural, and social experiences to enrich each student's experience.

The Student Activities Office is responsible for the publication of printed materials such as the *Student Handbook,* the student newspaper *VWCC Gazette,* and the *Sports Policy Manual.*

The office compiles information on all campus organizations, sports clubs, and academic clubs and their faculty sponsors. It also provides information on student health insurance, distributes I.D. cards, houses the Lost & Found Department, and maintains a "Housing Service" for students needing a place to live.

STUDENT GOVERNMENT ASSOCIATION

The Student Government Association serves as a vital link in communication among students, faculty, and administration. Elections are held each spring and fall to ensure representation by both returning students and incoming freshmen. The president of the S.G.A. receives a tuition scholarship.

The S.G.A. is organized to further the interests of the students and the College through student representation in matters affecting student life and student affairs.

PARKING ON CAMPUS

The use of any motor vehicle on the campus by any student is a privilege. Copies of the regulations governing parking on the campus are available in the Cashier's Office. Students should obtain copies each year to assure that they have current regulations.

A thorough understanding of the regulations is important. City of Roanoke traffice tickets will be issued for violation of college parking regulations. Repeated violations will result in disciplinary action which may include removal of campus parking privileges. Where circumstances warrant, the College may have a vehicle removed at the owner's expense. Vehicles obstructing traffic, blocking other vehicles, or unauthorized vehicles parked in "Reserved" or "Handicapped" areas may be towed at the owner's expense.

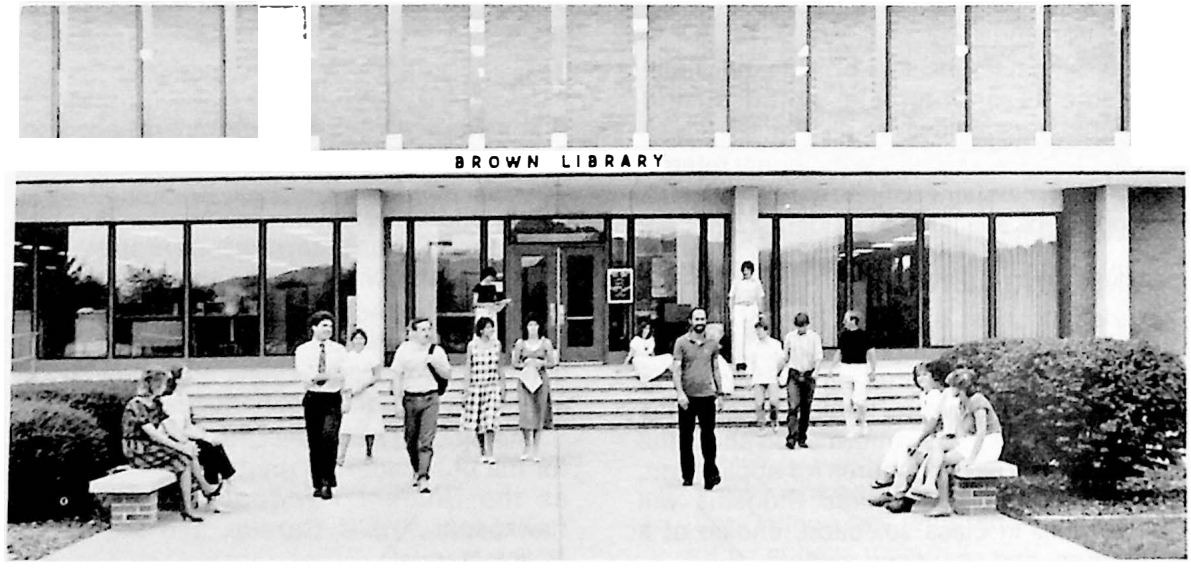
Student parking on the campus is permitted only in the spaces **Marked in White**; faculty and reserved spaces are marked in yellow. During late afternoon and evening hours, some faculty and reserved spaces are opened to students - when these spaces are used diligent attention to the signs posted at the entrance to the lot is a must.

The College assumes no responsibility for the care or protection of any vehicle or contents at any time it is being operated or is parked on the campus.

All vehicles parked on the campus must display a decal. Decals may be obtained from the Cashier's Office or the Bookstore.

Note: A fee of $1 per vehicle will be charged for students during Summer School 1986. A vehicle with a valid 1985-86 decal will not need a decal for Summer Quarter 1986.

Beginning with Fall 1986, THERE WILL BE NO CHARGE FOR PARKING DECALS; HOWEVER, THE DISPLAY OF A DECAL ON EACH CAR ON CAMPUS WILL BE REQUIRED.



Part III

CURRICULA OF STUDY

COLLEGE TRANSFER

Associate in Arts Degree (AA) in Liberal Arts with a major in Liberal Arts

Associate in Arts Degree (AA) in Visual & Performing Arts with a major in Fine Arts

Associate in Science Degree (AS) in Business Administration with a major in Business Administration

Associate in Science Degree (AS) in Education with a major in Education

Associate in Science Degree (AS) in Engineering with a major in Engineering

Associate in Science Degree (AS) in General Studies with a major in General Studies

Associate in Science Degree (AS) in Physical & Natural Sciences with a major in Science

Associate in Science Degree (AS) in Physical & Natural Sciences with a major in Science
Specialization: Computer Science

OCCUPATIONAL/TECHNICAL

AGRICULTURE & NATURAL RESOURCES TECHNOLOGY

Associate in Applied Science Degree (AAS) in Agricultural Business with a major in Horticulture
Specializations: Floriculture, and Landscape/Grower

ARTS & DESIGN TECHNOLOGY

Associate in Applied Science Degree (AAS) in Graphic Communications with a major in Commercial Arts

BUSINESS TECHNOLOGY

Associate in Applied Science Degree (AAS) in Business Management with a major in Accounting

Associate in Applied Science Degree (AAS) in Business Management with a major in Management
Specializations: Banking and Finance, Merchandising, and Real Estate

Associate in Applied Science Degree (AAS) in Business and Office with a major in Office Systems Technology
Specializations: Executive, Legal, Medical, and Word Processing

Associate in Applied Science Degree (AAS) in Data Processing with a major in Data Processing

ENGINEERING & INDUSTRIAL TECHNOLOGY

Associate in Applied Science Degree (AAS) in Architectural & Construction with a major in Architecture

Associate in Applied Science Degree (AAS) in Civil Engineering with a major in Civil Engineering

Associate in Applied Science Degree (AAS)in Electrical/Electronics with a major in Electrical/Electronics
Specializations: Communications and Power

Associate in Applied Science Degree (AAS) in Mechanical with a major in Mechanical Engineering

Associate in Applied Science Degree (AAS) in Vehicle & Equipment with a major in Automotive

HEALTH TECHNOLOGY

Associate in Applied Science Degree (AAS) in Dental Hygiene with a major in Dental Hygiene

Associate in Applied Science Degree (AAS) in Mental Health with a major in Mental Health

Associate in Applied Science Degree (AAS) in Nursing with a major in Nursing

Associate in Applied Science Degree (AAS) in Radiography with a major in Radiography

PUBLIC SERVICE

Associate in Applied Science Degree (AAS) in Comunication with a major in Radio & Television Production

Associate in Applied Science Degree (AAS) in Educational Services with a major in Early Childhood Development

Associate in Applied Science Degree (AAS) in Protective Services with a major in Administration of Justice

DIPLOMA PROGRAMS

Automotive Analysis & Repair
Electronic Servicing

CERTIFICATE PROGRAMS

Air Conditioning & Refrigeration
Architectural Drafting
Automotive Mechanics
Clerical Studies
Clerk Stenographic
Dental Assisting
Education Secretary
Electronic Servicing
Emergency Medical Assistant
Legal Assistant
Medical Transcriptionist
Savings and Loan Administration
Welding

CAREER STUDIES PROGRAMS

Air Conditioning & Refrigeration
*Architectural Drafting
Automotive Mechanics
Basic Electricity/Electronics
Business Industrial Supervision
Construction Supervisory Training
Credit Union Aide
Education Secretary
*Electronic Servicing
Emergency Medical Assistant
Fire Fighting and Prevention
Floral Design & Indoor Plant Care
Landscaping and Outdoor Plant Care
Legal Aide
Metal Processing
Nursing Assistant
Savings & Loan Assistant
Welding Practice
Word Processing
*Pending Approval

MINIMUM REQUIREMENTS FOR ASSOCIATE DEGREES

Associate in Arts (AA)
Associate in Science (AS)
Associate in Applied Science (AAS)

	Number of Credits (Quarter Hours)		
	AA[1]	AS[1]	AAS
Humanities			
English Composition	9	9	0
Communication Skills	0	0	6-9
Literature (English, American, or World)	6-9	0-3	9 —
English or Speech	0-3	0-3	0-3
Art, Drama, Music	9	3	
Humanities and/or Philosophy	0-6	0-3	—
Foreign Language	12-24[2]		
Social Sciences			
History (American or Western Civilization)	9	3-9	—
Economics	0-9	0-9	3
Government	0-9	0-9	3
Psychology or Human Relations	9[3] 0-9	9[3] 0-9	4 3
Sociology	0-9	0-9	—
Natural Sciences and MATHEMATICS			
Natural Sciences (Laboratory) (Biology, Chemistry, Geology, Physics)	12-15	12-24[6]	—
Mathematics	9	9	—
Health, Physical Education or Recreation	3-6	3-6	3-6
Orientation	1	1	1
Electives and Other Major Field Requirements	3-21[1]	48	75[5]
Minimum Total Number of Credits for Degree	97	97	97

[1]Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and further to consult with the Counseling Department of the community college in planning their program and selecting electives.

[2]Students who have successfully completed two years of a foreign language in high school may petition for advance placement to the sophomore course of this foreign language.

[3]In addition to the history requirements, the student shall complete a total of nine quarter-hours credit in the social sciences which may include economics, government, sociology and/or psychology.

[4]SOSC 101-102-103 may be substituted for ECON, GOVT, and PSYC.

[5]The Associate in Applied Science degree programs should be organized approximately as follows:

Specialized and degree related courses	50%
General education courses	25%
College electives	25%

[6]This requirement may be waived for the General Studies major.

STATE AND REGIONAL SPECIALIZED PROGRAMS

In the Virginia Community College System, certain highly-specialized curricula, though designed to serve all Virginia residents, are limited in offering to selected locations. These curricula generally reflect geographic, demographic, or economic considerations which preclude extensive offering Statewide, and therefore usually are approved for not more than three community colleges to meet State or Regional requirements. As changing circumstances warrant and additional State and Regional needs are determined, specialized curriculums may be located in other community college regions. Accordingly, the following State and Regional Specialized Programs are identified for the Virginia Community College System.

Program	Community College
Agricultural & Natural Resources & Technology Majors:	
Animal Science	Blue Ridge
	Northern Virginia
Agronomy	Paul D. Camp
Forestry	Dabney S. Lancaster
Natural Resources Management & Security	Lord Fairfax
Wildlife	Dabney S. Lancaster
Arts and Design Technology Majors:	
Media Advertising Arts	Tidewater
Printing	Blue Ridge
Business Technology Majors:	
Aviation Administration	Northern Virginia
Office Administration & Management	Northern Virginia
Real Estate	Northern Virginia
	Tidewater
Traffic & Transportation	Tidewater
Engineering/Industrial Technology Majors:	
Broadcast Engineering	Northern Virginia
Environmental Science	J. Sargeant Reynolds
	Wytheville
Environmental & Science	Northern Virginia
Industrial	New River
Instrumentation	New River
Machine (Tool)	New River
Marine Science	Rappahannock
	Thomas Nelson
Mining	Mountain Empire
	Southwest Virginia
Urban Regional Planning & Development	Northern Virginia
Health Technology Majors:	
Dental Laboratory	J. Sargeant Reynolds
	Northern Virginia
Funeral Services	John Tyler
Opticianry	J. Sargeant Reynolds
	Thomas Nelson
Physical Therapy	Northern Virginia
Radiography	Central Virginia
	Virginia Western
Public Service Technology Majors:	
Air Traffic Control	Northern Virginia
Occupational Safety and Health	Northern Virginia
	Thomas Nelson
Radio and Television Production	Virginia Western

ACCOUNTING
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in the Accounting field.

Occupational Objectives: Technician or trainee in Accounting, Auditing or Management.

Curriculum Admission Guidelines: Minimum of two units of high school mathematics, one of which must be algebra or the equivalent, and proficiency in high school English. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Accounting Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	100	Introduction to Business	3	0	3
BUAD	121	Business Mathematics I (or MATH 161)	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
		Total	16	1	16
		Second Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II (or MATH 162)	3	0	3
ENGL	112	English Composition II	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
OFTC	111	Typewriting I	2	3	3
		Total	14	3	15
		Third Quarter			
ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or PHED)	3	0	3
[2]PSYC	128	Human Relations	3	0	3
		Total	18	0	18
		Second Year Curriculum **Fourth Quarter**			
ACCT	231	Cost Accounting I	3	0	3
ACCT	261	Intermediate Accounting I	3	0	3
BUAD	241	Business Law	3	0	3
BUAD	254	Applied Business Statistics I	3	0	3
DAPR	151	Basic for Microcomputers I	2	2	3
OFTC	248	Business Letter Writing	3	0	3
		Total	17	2	18
		Fifth Quarter			
ACCT	232	Cost Accounting II	3	0	3
ACCT	244	Taxes I	3	0	3
ACCT	262	Intermediate Accounting II	3	0	3
BUAD	242	Business Law II	3	0	3
BUAD	255	Applied Business Statistics II	3	0	3
		Total	15	0	15

Sixth Quarter

ACCT	233	Cost Accounting III	3	0	3
ACCT	245	Taxes II	3	0	3
ACCT	263	Intermediate Accounting II	3	0	3
BUAD	246	Business Finance (or Business Elective)	3	0	3
DAPR	236	Data Processing Management	3	0	3
		Total	15	0	15

Total Minimum Credits for Degree 97

BE - Business Electives must be selected from ACCT, BUAD, DAPR, MKTG, or OFTC courses
[1]GENL 198 or 296 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute elective for Health or Physical Education.
[4]Student must take BUAD 123 regardless of math series.

ADMINISTRATION OF JUSTICE
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: This curriculum has two primary purposes: (1) to prepare the student for careers in the Criminal Justice field, and (2) to provide the first two years academic foundation for transfer into a four-year liberal arts or professional degree program in the discipline. The courses are particularly attractive to non-majors as interesting electives in a subject matter that is concern to all. The program is especially enriched by course offerings taught by professionals in Police, Court, and Correctional agencies.

Occupational Objectives: The curriculum is designed to aid those seeking careers (or seeking advancement in careers) in

Law Enforcement (Local, State, Federal)
Private and Public Security
Law (paralegal, prosecution/defense attorney, judge, court administration)
Corrections (Jail/Prison and community based agencies, probation/parole, and rehabilitation program staff)
Juvenile Justice (counseling, casework)

Educational Objectives: The curriculum is designed for maximum transferability from Virginia Western to four-year institutions which have baccalaureate degree programs in Administration of Justice, Criminal Justice, Criminology, Law Enforcement, Police Science, and Public Service. Most of these four-year degree programs are Social Science oriented, which is the orientation of this curriculum; and it easily merges with pre-law programs at most four-year institutions as well. A number of the careers listed under Occupational Objectives above will require a four-year degree, so it is essential that students consult early with the Program Head concerning career and academic goals.

Administration of Justice Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ADJU	130	Introduction to Criminal Justice	3	0	3
ADJU	134	Criminal Law I	3	0	3
ADJU	176	Criminology	3	0	3
[1]ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
[2]GENL	100	Orientation	1	1	1
HLTH	110	Concepts of Personal & Community Health	3	0	3
		Total	16	1	16

Second Quarter

ADJU	133	The American Police	3	0	3
ADJU	135	Criminal Law II	3	0	3
ADJU	160	Introduction to Courts	3	0	3
[1]ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	15	0	15

Third Quarter

ADJU	120	Introduction to Corrections	3	0	3
ADJU	240	Constitutional Law for Police	3	0	3
ECON	160	Survey of American Economics	3	0	3
[1]ENGL	109	Communication in Business and Industry (or ENGL 113)	3	0	3
SPDR	136	Oral Communications (or SPDR 137)	3	0	3
ADJU	E	Administration of Justice Elective	3	0	3
		Total	18	0	18

Fourth Quarter

ADJU	140	Introduction to Security Administration	3	0	3
GOVT	281	United States Government I	3	0	3
[3]E		Electives	7	0	7
ADJU	E	Administration of Justice Elective	3	0	3
		Total	16	0	16

Fifth Quarter

ADJU	126	Prevention & Control of Juvenile Delinquency	3	0	3
GOVT	282	United States Government II	3	0	3
[3]E		Electives	7	0	7
ADJU	E	Administration of Justice Elective	3	0	3
		Total	16	0	16

Sixth Quarter

ADJU	168	Crime and Justice in America	3	0	3
GOVT	283	United States Government III	3	0	3
[3]E		Electives	7	0	7
ADJU	E	Administration of Justice Elective	3	0	3
		Total	16	0	16

Total Minimum Credits for Degree 97

[1]ENGL 111-112-113 should be taken by students planning to transfer to four-year program.
[2]GENL 198 or 298 may be taken instead of GENL 100 with Advisor/Counselor approval.
[3]Electives must be selected from the transfer courses listed on the Administration of Justice Curriculum Guide Sheet.
—Substitutions for any required courses must be approved by the Administration of Justice Program Head.

AIR CONDITIONING AND REFRIGERATION
(Certificate)

Purpose: The curriculum is primarily designed to train persons for full-time employment.

Occupational Objectives: Service Technician, Installation Technician

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Air Conditioning and Refrigeration Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
AIRC	11	Air Conditioning I	2	2	3
ELEC	94	Practical Electricity I	2	2	3
		Total	4	4	6
		Second Quarter			
AIRC	12	Air Conditioning II	2	2	3
ELEC	95	Practical Electricity II	2	2	3
		Total	4	4	6
		Third Quarter			
AIRC	13	Air Conditioning III	2	2	3
ELEC	96	Practical Electricity III	2	2	3
		Total	4	4	6
		Fourth Quarter			
AIRC	14	Air Conditioning IV	2	2	3
ELEC	76	Electrical Power	3	0	3
		Total	5	2	6
		Fifth Quarter			
AIRC	15	Air Conditioning V	2	2	3
ELEC	73	Electrical and Control Systems	3	0	3
		Total	5	2	6
		Sixth Quarter			
AIRC	16	Air Conditioning VI	2	2	3
ELEC	20	Electronics Survey	3	0	3
		Total	5	2	6
		ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY QUARTER:			
[1]ECON	160	Survey of American Economics	3	0	3
ENGL		English (or SPDR)	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
[1]PSYC	128	Human Relations	3	0	3
		Total	12	0	12

Total Minimum Credits for Career Studies Certificate 48

[1]A year sequence in Social Science may be substituted.

AIR CONDITIONING AND REFRIGERATION
(Career Studies)

Purpose: The curriculum is primarily designed to train persons for full-time employment.

Occupational Objectives:
Service Technician
Installation Technician

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Air Conditioning & Refrigeration Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
AIRC	11	Air Conditioning I	2	2	3
ELEC	94	Practical Electricity I	2	2	3
		Total	4	4	6
		Second Quarter			
AIRC	12	Air Conditioning II	2	2	3
ELEC	95	Practical Electricity II	2	2	3
		Total	4	4	6
		Third Quarter			
AIRC	13	Air Conditioning III	2	2	3
ELEC	96	Practical Electricity III	2	2	3
		Total	4	4	6
		Fourth Quarter			
AIRC	14	Air Conditioning IV	2	2	3
ELEC	76	Electrical Power	3	0	3
		Total	5	2	6
		Fifth Quarter			
AIRC	15	Air Conditioning V	2	2	3
ELEC	73	Electrical and Control Systems	3	0	3
		Total	5	2	6
		Sixth Quarter			
AIRC	16	Air Conditioning VI	2	2	3
ELEC	20	Electronics Survey	3	0	3
		Total	5	2	6

Total Minimum Credits for Career Studies Certificate 36

ARCHITECTURAL DRAFTING
(Certificate)

Purpose: The curriculum is primarily designed to train persons for full-time employment.

Occupational Objectives:
Architectural Aide
Architectural Draftsman

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Architectural Drafting Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARCH	111	Architectural Drafting I	1	6	3
CIVL	140	Construction Planning	3	0	3
		Total	4	6	6
		Second Quarter			
ARCH	112	Architectural Drafting II	1	6	3
ARCH	141	Materials and Methods of Construction	2	3	3
		Total	3	9	6
		Third Quarter			
ARCH	113	Architectural Drafting III	1	6	3
ARCH	142	Materials and Methods of Construction	3	0	3
		Total	4	6	6
		Fourth Quarter			
ARCH	211	Architectural Drafting IV	1	6	3
ARCH	276	Construction Estimating	3	0	3
		Total	4	6	6
		Fifth Quarter			
ARCH	212	Architectural Drafting V	1	6	3
		Total	1	6	3
		Sixth Quarter			
ARCH	213	Architectural Drafting VI	1	6	3
		Total	1	6	3
REQUIRED COURSES THAT MAY BE TAKEN ANY QUARTER:					
[1]ECON	160	Survey of American Economics	3	0	3
ENGL		English (or SPDR)	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
[1]PSYC	128	Human Relations	3	0	3
MATH	118	Introduction to Technical Mathematics	5	0	5
MATH	121	Engineering Technical Mathematics	5	0	5
		Total	22	0	22

Total Minimum Credits for Certificate 52

[1]A year sequence in Social Science may be substituted.

ARCHITECTURAL DRAFTING
(Career Studies)

Purpose: The curriculum is designed to prepare selected students for entry level positions in industries requiring skilled draftsmen or for upgrading existing skills of those currently employed in the field.

Occupational Objectives: Training for entry level positions in the Drafting Field. Upon satisfactory completion, the graduate will be awarded the Certificate of Career Studies.

Curriculum Admission Guidelines: A high school diploma, GED, or the equivalent is recommended.

Architectural Drafting Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARCH	111	Architectural Drafting I	1	6	3
CIVL	140	Construction Planning	3	0	3
		Total	4	6	6
		Second Quarter			
ARCH	112	Architectural Drafting II	1	6	3
ARCH	141	Materials and Methods of Construction I	2	3	3
		Total	3	9	6
		Third Quarter			
ARCH	113	Architectural Drafting III	1	6	3
ARCH	142	Materials and Methods of Construction II	3	0	3
		Total	4	6	6
		Fourth Quarter			
ARCH	211	Architectural Drafting IV	1	6	3
ARCH	276	Construction Estimating	3	0	3
		Total	4	6	6
		Fifth Quarter			
ARCH	212	Architectural Drafting V	1	6	3
		Total	1	6	3
		Sixth Quarter			
ARCH	213	Architectural Drafting VI	1	6	3
		Total	1	6	3

Total Minimum Credits for Career Studies Certificate 30

ARCHITECTURE TECHNOLOGY
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to develop qualified engineering technicians. Graduates may seek immediate employment or consider opportunities available for transfer to appropriate Bachelor of Technology Programs offered by some four-year universities.

Occupational Objectives: Varied job opportunities in architectural offices, with building contractors, and with industries related to architectural technology.

Curriculum Admission Guidelines: Proficiency in high school English and 2 units of mathematics (1 unit of algebra and 1 unit of geometry or trigonometry). Developmental courses may be recommended for students with deficiencies in English and mathematics.

Architecture Technology Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARCH	100	Introduction to Architecture	3	0	3
ARCH	111	Architectural Drafting I	1	6	3
CIVL	140	Construction Planning	3	0	3
ENGL	101	Communication Skills (or ENGL 111)	3	0	3
[1]GENL	100	Orientation	1	1	1
MATH	118	Introduction to Technical Mathematics	5	0	5
		Total	16	7	18
		Second Quarter			
ARCH	112	Architectural Drafting II	1	6	3
ARCH	141	Materials and Methods of Construction	2	3	3
ARCH	168	Introduction to Solar Energy I	3	0	3
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
MATH	121	Engineering Technical Mathematics I	5	0	5
		Total	14	9	17
		Third Quarter			
ARCH	113	Architectural Drafting III	1	6	3
ARCH	142	Materials and Methods of Construction	3	0	3
ARCH	169	Introduction to Solar Energy II	3	0	3
ENGR	151	Mechanics I	4	0	4
MATH	122	Engineering Technical Mathematics	5	0	5
		Total	16	6	18
		Fourth Quarter			
ARCH	211	Architectural Drafting IV	1	6	3
ARCH	276	Construction Estimating	3	0	3
[2]ECON	160	Survey of American Economics	3	0	3
ENGR	252	Engineering Mechanics II	4	0	4
[2]PSYC	128	Human Relations	3	0	3
		Total	14	6	16
		Fifth Quarter			
ARCH	212	Architectural Drafting V	1	6	3
CIVL	100	Introduction to Surveying	2	2	3
CIVL	217	Structural Steel Design	4	0	4
[2]GOVT	180	American Constitutional Government	3	0	3
PHYS	121	Principles of Physics I	3	3	4
		Total	13	11	17

		Sixth Quarter			
ARCH	213	Architectural Drafting VI	1	6	3
CIVL	181	Surveying I	3	3	4
CIVL	218	Reinforced Concrete Design	4	0	4
ENGL	113	English Composition III (or SPDR 137)	3	0	3
PHYS	122	Principles of Physics II	3	3	4
		Total	14	12	18
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3
Total Minimum Credits for Degree					107

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

AUTOMOTIVE ANALYSIS AND REPAIR
(Diploma)

Purpose: The curriculum is primarily designed to train persons for full-time employment. A majority of the courses are transferable to the Associate Degree program.

Occupational Objectives:
Automotive Troubleshooting and Repair
Sales and Service
Tune-up Specialist

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics. The purchase of hand tools and personal safety equipment is the financial responsibility of the individual student.

Automotive Analysis and Repair Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
AUTO	131	Automotive Technology I	4	6	6
AUTO	191	Automotive Systems I	2	6	4
[4]ENGL	08	Reading Improvement	5	0	5
[1]GENL	100	Orientation	1	1	1
WELD	120	Fundamentals of Welding	1	3	2
		Total	13	16	18
		Second Quarter			
AUTO	132	Automotive Technology II	4	6	6
AUTO	141	Applied Mathematics for Automotive Technicians	3	0	3
AUTO	192	Automotive Systems II	2	6	4
ENGL	109	Communication in Business and Industry	3	0	3
WELD	122	Arc Welding I	1	3	2
		Total	13	15	18

		Third Quarter			
AUTO	133	Automotive Technology III	4	6	6
AUTO	142	Applied Mathematics for Automotive Technicians	3	0	3
AUTO	193	Automotive Systems III	2	6	4
MECH	131	Machine Laboratory	1	3	2
SPDR	137	Public Speaking	3	0	3
		Total	13	15	18
		Fourth Quarter			
AUTO	231	Automotive Technology IV	4	6	6
AUTO	291	Automotive Systems IV	2	6	4
[2]GOVT	180	American Constitutional Government	3	0	3
[3]HLTH	110	Concepts of Personal and Community Health	3	0	3
		Total	12	12	16
		Fifth Quarter			
AUTO	232	Automotive Technology V	4	6	6
AUTO	287	Shop Management and Customer Relations	3	0	3
AUTO	292	Automotive Systems V	2	6	4
[2]ECON	160	Survey of American Economics	3	0	3
		Total	12	12	16
		Sixth Quarter			
AUTO	233	Automotive Technology VI	4	6	6
AUTO	246	Automotive Electronics	3	3	4
AUTO	293	Automotive Systems VI	2	6	4
[2]PSYC	128	Human Relations	3	0	3
		Total	12	15	17

Total Minimum Credits for Diploma 98

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Satisfactory completion of ENGL 08 for 5 equivalent credits is required for students having reading deficiencies.
—ENGL 08 credits do not count toward diploma.

AUTOMOTIVE MECHANICS
(Career Studies)

Purpose: The curriculum is primarily designed to train persons for full-time employment.

Occupational Objectives:
Automotive Mechanic
Sales and Service

Curriculum Admission Guidelines: Proficiency in oral and written communication skills and general mathematics. The purchase of hand tools and personal safety equipment is the financial responsibility of the individual student.

Automotive Mechanics Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
AUTO	121	Automotive Fuel Systems I	3	3	4
AUTO	136	Automotive Lubrication and Cooling Systems	2	3	3
		Total	5	6	7

		Second Quarter			
AUTO	122	Automotive Fuel Systems	3	3	4
AUTO	265	Automotive Braking Systems	2	2	3
		Total	5	5	7
		Third Quarter			
AUTO	154	Power Trains I	3	3	4
SAFE	176	Principles of Industrial Safety	2	0	2
		Total	5	3	6
		Fourth Quarter			
AUTO	111	Automotive Engines I	3	3	4
AUTO	287	Shop Management and Customer Relations	3	0	3
		Total	6	3	7

Total Minimum Credits for Career Studies Certificate 28

AUTOMOTIVE TECHNOLOGY
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is primarily designed to train persons for full-time employment.

Occupational Objectives:
Automotive Diagnostician
Sales and Service
Service Manager
Tune-up Specialist

Curriculum Admission Guidelines: Proficiency in high school English and mathematics (1 unit of algebra). Developmental courses may be recommended for students with deficiencies in English and mathematics. The purchase of hand tools and personal safety equipment is the financial responsibility of the individual student.

Automotive Technology Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
AUTO	131	Automotive Technology I	4	6	4
AUTO	191	Automotive Systems I	2	6	4
[4]ENGL	08	Reading Improvement	0	0	5
[1]GENL	100	Orientation	1	1	1
WELD	120	Fundamentals of Welding	1	3	2
		Total	8	16	16
		Second Quarter			
AUTO	132	Automotive Technology II	4	6	6
AUTO	141	Applied Mathematics for Automotive Technicians	3	0	3
AUTO	192	Automotive Systems II	2	6	4
ENGL	109	Communication in Business and Industry	3	0	3
WELD	122	Arc Welding I	1	3	2
		Total	13	15	18

		Third Quarter			
AUTO	133	Automotive Technology III	4	6	6
AUTO	142	Applied Mathematics for Automotive Technicians	3	0	3
AUTO	193	Automotive Systems III	2	6	4
MECH	131	Machine Laboratory I	1	3	2
SPDR	137	Public Speaking	3		3
		Total	13	15	18
		Fourth Quarter			
AUTO	126	Anti-Pollution Systems	3	3	4
AUTO	138	Automotive Vehicle Inspection	2	3	3
AUTO	170	Introduction to Diesel Engine	2	2	3
AUTO	180	Introduction to Diesel-Powered Vehicles	1	3	2
AUTO	260	Automotive Accessory Service	2	2	3
AUTO	268	Automotive Alignment	1	3	2
		Total	11	16	17
		Fifth Quarter			
AUTO	231	Automotive Technology IV	4	6	6
AUTO	291	Automotive Systems IV	2	6	4
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3
		Total	12	12	16
		Sixth Quarter			
AUTO	232	Automotive Technology V	4	6	6
AUTO	287	Shop Management and Customer Relations	3	0	3
AUTO	292	Automotive Systems	2	6	4
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
		Total	12	12	16
		Seventh Quarter			
AUTO	233	Automotive Technology VI	4	6	6
AUTO	246	Automotive Electronics	3	3	4
AUTO	293	Automotive Systems VI	2	6	4
[2]PSYC	128	Human Relations	3	0	3
		Total	12	15	17
		Eighth Quarter			
BUAD	100	Introduction to Business (or BUAD 164)	3	0	3
[2]ECON	160	Survey of American Economics	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
		Total	9	0	9

Total Minimum Credits for Degree 124

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Satisfactory completion of ENGL 08 for 5 equivalent credits is required for students having reading deficiencies.
—ENGL 08 credits do not count toward degree.

BASIC ELECTRICITY/ELECTRONICS
(Career Studies)

Occupational Objectives: Training for entry level positions in Electrical/Electronic orientated industries.

Basic Electricity/Electronics Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	94	Practical Electricity I	2	2	3
		Total	2	2	3
		Second Quarter			
ELEC	95	Practical Electricity II	2	2	3
		Total	2	2	3
		Third Quarter			
ELEC	96	Practical Electricity III	2	2	3
		Total	2	2	3
		Fourth Quarter			
ELEC	76	Electrical Power	3	0	3
		Total	3	0	3
		Fifth Quarter			
ELEC	73	Electrical and Control Systems	3	0	3
		Total	3	0	3
		Sixth Quarter			
DRFT	158	Electrical-Electronics Drafting	1	3	2
ELEC	20	Electronics Survey	3	0	3
		Total	4	3	5

Total Minimum Credits for Career Studies Certificate 20

BUSINESS ADMINISTRATION
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 business administration. **Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with the counseling office of the community college in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.**

Curriculum Admission Guidelines: 4 units of English; 3 units of mathematics (algebra and geometry); 1 unit of laboratory science; and 1 unit of social studies. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Business Administration Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
HIST	111	United States History I (or HIST 101)	3	0	3
MATH	161	College Mathematics (or MATH 141)	3	0	3
[2]NS		Natural Science with Laboratory	3	3	4
[4]E		Elective	3	0	3
		Total	16	4	17
		Second Quarter			
ENGL	112	English Composition II	3	0	3
HIST	112	United States History II (or HIST 102)	3	0	3
MATH	162	College Mathematics II (or MATH 142)	3	0	3
[2]NS		Natural Science with Laboratory	3	3	4
[4]E		Elective	3	0	3
		Total	15	3	16
		Third Quarter			
ENGL	113	English Composition III	3	0	3
HIST	113	United States History III (or HIST 103)	3	0	3
MATH	163	College Mathematics III (or MATH 143)	3	0	3
[2]NS		Natural Science with Laboratory	3	3	4
[4]E		Elective	3	0	3
		Total	15	3	16
		Fourth Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	251	Business Statistics I (or Elective[4])	3	0	3
ECON	211	Principles of Economics I	3	0	3
ENGL	251	Survey of American Literature I (or ENGL 261 or ENGL 271)	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
MATH	261	Advanced College Mathematics I (or Elective[4])	3	0	3
		Total	18	0	18

		Fifth Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	252	Business Statistics II (or Elective)	3	0	3
ECON	212	Principles of Economics II	3	0	3
ENGL	252	Survey of American Literature II (or ENGL 262 or ENGL 272)	3	0	3
MATH	262	Advanced College Mathematics II (or Elective)	3	0	3
		Total	15	0	15
		Sixth Quarter			
ACCT	213	Principles of Accounting III	3	0	3
BUAD	253	Business Statistics III (or Elective)	3	0	3
ECON	213	Principles of Economics III	3	0	3
ENGL	253	Survey of American Literature III (or ENGL 263 or ENGL 273)	3	0	3
E		Elective	3	0	3
		Total	15	0	15

Total Minimum Credits for Degree 97

[1]GENL 198 or 298 may be takin in lieu of GENL 100 with counselor approval.
[2]NATURAL SCIENCE—one-year sequence in either BIOL 101, CHEM 111, GEOL 101, or PHYS 121.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Electives must be selected from Business Administration Curriculum Guide Sheet.

BUSINESS INDUSTRIAL SUPERVISION
(Career Studies)

Occupational Objective: Program is designed to prepare the individual to operate in business and industry on the supervisory level. The individual would be prepared for employment in the area of supervision, training, employee relations and various foreman positions.

Business Industrial Supervision Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ACCT	211	Principles of Accounting I	3	0	3
BUAD	110	Human Relations & Leadership Training	3	0	3
BUAD	114	Principles of Supervision I	3	0	3
BUAD	115	Principles of Supervision II	3	0	3
BUAD	164	Principles of Business Management I	3	0	3
BUAD	165	Principles of Business Management II	3	0	3
BUAD	288	Communications in Management	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
SAFE	176	Principles of Industrial Safety	2	0	2
		Total	26	0	26

Credit Hours Required for Career Studies Certificate 26

CHILD CARE
(Certificate)

Purpose: The curriculum is designed to introduce interested persons, including parents, to the field of early childhood education and to provide opportunities for individuals presently working in this field or allied professions to improve the knowledge and skills necessary to foster growth in young children—intellectual, social, physical, emotional and creative. Also, this curriculum has been established to provide competencies in the areas proposed for the Child Development Associate Credential of the National Association for the Education of Young Children.

Occupational Objectives: Positions in day care centers, nursery schools, playground programs, foster homes, hospital playrooms, family day care facilities, in-home care, and other facilities offering services for pre-school children.

Curriculum Admission Guidelines: Evidence that the applicant possesses the intellectual, emotional, and physical capacities and the interest and aptitude necessary for relating successfully to young children. Developmental courses may be recommended for students with deficiencies in English and mathematics. The program is open to both male and female applicants. Applicants are required to have an interview with the Child Development Education faculty prior to entering this program. Each student is responsible for transportation to and from field sites used for laboratory experience. Students considering further work in early childhood education are advised to consult the catalogue listings Early Childhood Development, A.A.S. Degree and/or Education.

Child Care Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
EDUC	120	Introduction to Early Childhood Education	3	0	3
[1]EDUC	190	Coordinated Internship	3	0	3
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
HLTH	156	Child Health and Nutrition	3	0	3
PSYC	130	Child Growth and Development	3	0	3
		Total	16	1	16
		Second Quarter			
ECON	160	Survey of American Economics (or SOCI 101)	3	0	3
EDUC	106	Language Arts for Young Children	3	0	3
EDUC	121	Early Childhood Education I	3	0	3
[1]EDUC	190	Coordinated Internship	4	0	4
SOCI	166	School and Community Relations	3	0	3
		Total	16	0	16
		Third Quarter			
EDUC	122	Early Childhood Education II	3	0	3
EDUC	137	Creative Activities	3	0	3
[1]EDUC	190	Coordinated Internship	4	0	4
GOVT	180	American Constitutional Government (or SOCI 102)	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	16	0	16

Credits Required for Certificate 48

[1]EDUC 190, Coordinated Internship is required with the EDUC 120-121-122 sequence.
—The Red Cross First Aid and Emergency Care Certificate or Health 104 (2 hours) are suggested in addition to the above courses.

CIVIL ENGINEERING TECHNOLOGY
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to develop qualified engineering technicians. Graduates may seek immediate employment or consider opportunties available for transfer to appropriate Bachelor of Technology Programs offered by some four-year universities.

Occupational Objectives: Varied job opportunities with construction industries and State Highway Departments.

Curriculum Admission Guidelines: Proficiency in high school English and 2 units of mathematics (1 unit of algebra and 1 unit of geometry or trigonometry) Developmental courses may be recommended for students with deficiencies in English and mathematics.

Civil Engineering Technology Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARCH	111	Architectural Drafting I	1	6	3
CIVL	140	Construction Planning	3	0	3
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
[1]GENL	100	Orientation	1	1	1
[2]GOVT	180	American Constitutional Government	3	0	3
MATH	118	Introduction to Technical Mathematics	5	0	5
		Total	16	7	18
		Second Quarter			
ARCH	112	Architectural Drafting II	1	6	3
ARCH	141	Materials and Methods of Construction	2	3	3
CIVL	100	Introduction to Surveying	2	2	3
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
MATH	121	Engineering Technical Mathematics I	5	0	5
		Total	13	11	17
		Third Quarter			
ARCH	142	Materials and Methods of Construction	3	0	3
CIVL	181	Surveying I	3	3	4
ENGR	100	Introduction to Engineering Technology	1	2	2
ENGR	151	Mechanics I (Statistics)	4	0	4
MATH	122	Engineering Technical Mathematics II	5	0	5
		Total	16	5	18
		Fourth Quarter			
ARCH	276	Construction Estimating	3	0	3
ENGR	252	Engineering Mechanics II	4	0	4
MATH	123	Engineering Technical Mathematics III	5	0	5
PHYS	121	Principles of Physics I	3	3	4
		Total	15	3	16
		Fifth Quarter			
CIVL	217	Structural Steel Design	4	0	4
CIVL	230	Structural Analysis	3	0	3
CIVL	E	Civil Elective			4
[2]ECON	160	Survey of American Economics	3	0	3
PHYS	122	Principles of Physics II	3	3	4
		Total	13	3	18

Sixth Quarter

CIVL	218	Reinforced Concrete Design	4	0	4
ENGL	113	English Composition III (or SPDR 137)	3	0	3
MECH	268	Fluid Mechanics	4	0	4
PHYS	123	Principles of Physics III	3	3	4
[2]PSYC	128	Human Relations	3	0	3
		Total	17	3	18
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3

Total Minimum Credits for Degree 108

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

CLERICAL STUDIES
(Certificate)

Purpose: The curriculum is primarily designed to train persons for full-time employment following graduation.

Occupational Objectives:
Typist
File Clerk
Receptionist
Related Office Work

Curriculum Admission Guidelines: Applicant must meet the general requirements for admission to the College. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Clerical Studies Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
[2]GOVT	180	American Constitutional Government	3	0	3
MATH	50	Business Mathematics (or BUAD 121)	2	3	3
OFTC	111	Typewriting I	2	3	3
		Total	14	7	16
		Second Quarter			
ENGL	112	English Composition II	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
OFTC	112	Typewriting II	2	3	3
[4]OFTC	139	Office Recordkeeping	3	0	3
[2]PSYC	128	Human Relations	3	0	3
SPDR	137	Public Speaking	3	0	3
		Total	17	3	18
		Third Quarter			
BE/DE/OFTC		Business Elective/DAPR Elective/or Office Systems Technology Elective	3	0	3
BUAD	108	Business Machines (or BUAD 123[4])	1	2	2-3
[3]OFTC	113	Typewriting III	2	3	3
OFTC	136	Filing and Records Management	3	0	3
[5]OFTC	137	Office Procedures	3	0	3
[5]OFTC	145	Beginning Machine Transcription	2	2	3
		Total	14	7	17-18

Total Minimum Credits for Certificate 51

BE - Business Electives may be selected from ACCT, BUAD, MKTG, DAPR or OFTC courses.
[1]GENL 198 or 298 may be takien in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSYC 201-202 may be substituted.
[3]Must meet minimum requirements for graduation; see instructor for OFTC 113.
[4]Successful completion of MATH 50/BUAD 121 is a prerequisite.
[5]Must be enrolled or have completed OFTC 113.

CLERK STENOGRAPHER
(Certificate)

Purpose: This curriculum is designed to provide training in the art and skills of clerical and stenographic practice.

Occupational Objectives:
Stenographer
Typist
File Clerk
General Office Work

Curriculum Admission Guidelines: Applicants must meet the general requirements for admission to the College. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Clerk Stenographer Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
[4]MATH	50	Business Mathematics (or BUAD 121)	2	2	3
OFTC	111	Typewriting I	2	3	3
OFTC	121	Shorthand I	3	2	4
		Total	14	8	17
		Second Quarter			
[2]ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	112	English Composition II	3	0	3
[2]PSYC	128	Human Relations	3	0	3
OFTC	112	Typewriting II	2	3	3
OFTC	122	Shorthand II	3	2	4
OFTC	136	Filing and Records Management	3	0	3
		Total	17	5	19
		Third Quarter			
BUAD	108	Business Machines (or BUAD 123)	1	2	2-3
[2]GOVT	180	American Constitutional Government	3	0	3
[3]OFTC	113	Typewriting III	2	3	3
[3]OFTC	123	Shorthand III	3	2	4
[5]OFTC	137	Office Procedures	3	0	3
[5]OFTC	145	Beginning Machine Transcription	2	2	3
		Total	14	9	18-19

Total Minimum Credits for Certificate 54

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Must meet minimum requirements for graduation; see instructor.
[4]Successful completeion of MATH 50/BUAD 121 is a prerequisite.
[5]Must be enrolled or have completed OFTC 113.

COMMERCIAL ART
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed primarily for persons who seek full-time employment in the commercial art field upon completion of the community college program.

Occupational Objectives:
- Advertising
- Illustrating
- Printing
- Photography
- Related Occupations

Curriculum Admission Guidelines: Proficiency in high school English and a satisfactory aptitude for drawing. Developmental courses may be recommended for students with deficiencies in English.

Commercial Art Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARTS	111	History and Appreciation of Art I	3	0	3
ARTS	121	Theory and Practice of Drawing I	1	4	3
ARTS	154	Design I	1	4	3
ENGL	111	English Composition I (or ENGL 101)	3	0	3
GENL	100	Orientation (or GENL 198 or 298)	1	1	1
[1]GOVT	180	American Constitutional Government	3	0	3
		Total	12	9	16
		Second Quarter			
ARTS	112	History and Appreciation of Art II	3	0	3
ARTS	122	Theory and Practice of Drawing II	1	4	3
ARTS	155	Design II	1	4	3
[1]ECON	160	Survey of American Economics	3	0	3
ENGL	112	English Composition II (or ENGL 102)	3	0	3
		Total	11	8	15
		Third Quarter			
ARTS	113	History and Appreciation of Art III	3	0	3
ARTS	123	Theory and Practice of Drawing III	1	4	3
ARTS	156	Design III	1	4	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
PHTG	101	Photography	1	4	3
[1]PSYC	128	Human Relations	3	0	3
		Total	12	12	18
ARTS	227	Drawing IV	0	6	3
ARTS	231	Theory and Practice of Painting I	1	4	3
ARTS	261	Advertising Design I	2	3	3
ARTS	271	Graphic Techniques I	1	4	3
[2]PHTG	201	Advanced Photography	1	4	3
		Total	5	21	15

Fifth Quarter

ARTS	228	Drawing V		6	3
ARTS	232	Theory and Practice of Painting II	1	4	3
ARTS	262	Advertising Design II	2	3	3
ARTS	272	Graphic Techniques II	1	4	3
ARTS	E	Arts Elective (or HUMN 201 or 202 or 203)	3	0	3
[2]PHTG	202	Advanced Photography	1	4	3
		Total	8	21	18

Sixth Quarter

ARTS	229	Drawing VI	0	6	3
ARTS	233	Theory and Practice of Painting III	1	4	3
ARTS	263	Advertising Design III	2	3	3
ARTS	273	Graphic Techniques III	1	4	3
ARTS	298	Seminar and Project in Arts	0	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
[2]PHTG	203	Advanced Photography	1	4	3
		Total	8	21	21

Total Minimum Credits for Degree 100

[1]The following series may be substituted: ECON 211-212-213, GOVT 281-282-283, PSYC 201-202-203, SOCI 101-102-103, HIST 101-102-103, HIST 187-188-189, or HIST 111-112-113.
[2]Two of three required; may be taken out of sequence.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

CONSTRUCTION SUPERVISORY TRAINING
(Career Studies)

Purpose: The curriculum is designed for updating and increasing the capabilities of superintendents, foremen, and other middle management personnel.

Occupational Objectives: Improved employment opportunities for persons currently employed in the building and construction fields.

Curriculum Admission Guidelines: A high school diploma, GED, or the equivalent is recommended.

Construction Supervisory Training Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ARCH	150	Principles of Construction Safety	3	0	3
BLDG	159	Principles of Construction Supervision	3	0	3
BLDG	166	Construction Law	3	0	3
BLDG	167	Problem Solving and Decision-Making	3	0	3
BLDG	168	Contract Documents	3	0	3
BLDG	169	Cost Awareness and Production Control	3	0	3
BLDG	177	Introduction to Project Management	3	0	3
BLDG	178	Construction Productivity Improvement	3	0	3
BLDG	186	Planning and Scheduling Techniques	3	0	3
ENGL	100	Occupational English	3	0	3
		Total	30	0	30

Total Minimum Credits for Career Studies Certificate 30

Upon successful completion of an individual course listed above, the student will be awarded a certificate signifying completion of one unit of the overall program by the Associated General Contractors.

Courses do not require prerequisites and may be taken during any quarter offered.

CREDIT UNION AIDE
(Career Studies)

Occupational Objective: Program is designed to teach basic and advanced credit union management and operational technique. Designed for employees and volunteers in the credit union movement.

Credit Union Aide Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ACCT	211	Principles of Accounting I	3	0	3
ACCT	212	Principles of Accounting II	3	0	3
ACCT	213	Principles of Accounting III	3	0	3
BUAD	130	Introduction to Credit Unions	4	0	4
BUAD	134	Principles of Credit Union Operations	4	0	4
BUAD	136	Credit and Collections Principles	3	0	3
BUAD	184	Principles of Business Management	4	0	4
BUAD	276	Personnel Management	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
ECON	160	Survey of American Economics	3	0	3
		Total	33	0	33

Total Credit Hours Required for Career Studies Certificate 33

DATA PROCESSING
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to provide the types of education and training that would be required by both business and industry.

Occupational Objectives:
Computer Programming Technician or Trainee
Related Data Processing Occupations

Curriculum Admission Guidelines: Minimum of two units of high school mathematics, one of which must be algebra or the equivalent, and proficiency in high school English. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Data Processing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	121	Business Mathematics I (or MATH 161)	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
DAPR	139	Flowcharting and Computer Programming Logic	3	0	3
[1]GENL	100	Orientation	1	1	1
OFTC	116	Keyboarding for Information Processing	2	2	3
		Total	15	3	16

Second Quarter

ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II (or MATH 162)	3	0	3
DAPR	121	Structured Cobol Programming I	2	3	3
ENGL	111	English Composition I	3	0	3
[2]PSYC	128	Human Relations	3	0	3
		Total	14	3	15

Third Quarter

ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III (or MATH 163)	3	0	3
DAPR	122	Structured Cobol Programming II	2	3	3
DAPR	258	Computer Programming: Basic	2	3	3
ENGL	112	English Composition II	3	0	3
		Total	13	6	15

Second Year

Fourth Quarter

BUAD	254	Applied Business Statistics	3	0	3
DAPR	123	Structured Cobol Programming	2	3	3
DAPR	137	Computer Operations Management	3	0	3
DAPR	281	Systems Analysis	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
		Total	17	3	18

Fifth Quarter

BUAD	246	Business Finance	3	0	3
DAPR	267	Computer Programming (RPG)	3	2	4
DAPR	282	Systems Analysis II	3	0	3
DAPR	287	Computer Software Systems	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
		Total	15	2	16

Sixth Quarter

BUAD	266	Financial Management	3	0	3
DAPR	236	Data Processing Management	3	0	3
DAPR	269	Computer Programming (RPG)	3	2	4
DAPR	286	Computer Program Applications	3	2	4
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
		Total	15	4	17

Total Minimum Credits for Degree 97

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Three credits in Health or physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Student must take BUAD 123 regardless of math series.

DENTAL ASSISTING
(Certificate)

Purpose: The Certificate in Dental Assistant curriculum is designed to prepare selected students to serve in a dynamic and growing health service by becoming valuable members of the Dental Health Team allowing for an in-depth study of expanded functions in keeping with the dental laws of Virginia.

At the successful completion of the program, a student will be eligible to take the National Certifying examination leading to a Certified Dental Assistant (C.D.A.).

Occupational Objectives:
Private Dental Practice
Hospital Dental Service
Group Dental Service
Dental Specialty Practice
Government Service
Dental Assisting Education

Curriculum Admission Requirements: The application must hold a high school diploma, or the equivalent, and have completed, on the high school level, four units of English or equivalent, one unit of biology with a grade of C or better, two units of social studies, and one unit of algebra with a grade of C or better. Students with deficiencies in English and mathematics can take developmental courses. All applicants must complete the Health Programs application form available in the Counseling Office.

A personal interview with the Counseling Department and Dental Assistant faculty is a part of the admission process. Considering the limited available slots, early application is highly advisable.

Upon notification of acceptance to the curriculum, applicants are required to submit a medical and dental report indicating good general health. Certification in cardiopulmonary resuscitation is required prior to the beginning of classes in the fall quarter. It is highly recommended that all students admitted to the program receive the Hepatitis B vaccine. The program is open to male and female students.

Curriculum Completion Guidelines: Students who receive a final grade lower than "C" in any required Dental Assistant Course must obtain permission from the Dental Assistant Faculty Committee and approval of the Division Chairman to continue the major in Dental Assistant.

The student will be responsible for transportation to health agencies utilized for clinical practice and the purchase of uniforms and accessories. It is recommended that the student purchase health insurance in addition to the liability insurance which is provided by the school.

Accreditation Status: The Dental Assisting Program is accredited by the commission on Dental Accreditation, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education.

Dental Assisting Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
DENT	108	Introduction to Dental Health Care Delivery	3	0	3
*DENT	115	Dental Materials	2	3	3
DENT	121	Chairside Assisting I	2	6	4
*DENT	167	Oral Anatomy	3	0	3
GENL	100	Orientation	1	1	1
NASC	130	Body Structure and Function	3	0	3
		Total	14	10	17

		Second Quarter			
*DENT	118	Dental Laboratory Procedures	0	3	1
DENT	122	Chairside Assisting II	2	6	4
DENT	146	Oral Radiographic Techniques	2	3	3
DENT	162	Dental Care Science II	3	0	3
GOVT	180	American Constitutional Government	3	0	3
		Total	10	12	14
		Third Quarter			
DENT	123	Chairside Assisting II	1	15	6
DENT	149	Dental Office Management Procedures	2	3	3
DENT	156	Oral Radiograph Practicum	0	3	1
DENT	159	Nutrition for Dental Assistants	2	0	2
DENT	163	Dental Care Science III	3	0	3
		Total	8	21	15
		Fourth Quarter **Summer Quarter**			
DAPR	105	Computer Concepts with Applications	2	2	3
DENT	124	Chairside Assisting IV	0	15	5
ECON	160	Survey of American Economics	3	0	3
ENGL	111	English Composition I	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	11	17	17

Total minimum credits required for Certificate 63

*Pending Approval
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]ENGL 101 may be substituted for ENGL 111.

DENTAL HYGIENE
ASSOCIATE IN APLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare selected students to serve in a dynamic and growing health profession as valuable members of the Dental Health team. Upon successful completion of the program, students will be eligible to take the National Board and State Board Examinations in Dental Hygiene leading to licensure as a Registered Dental Hygienist (R.D.H.).

Occupational Objectives:
Private Dental Practice
Group Dental Practice
Dental Specialty Practice
Hospital Dental Service
Government Service
Dental Hygiene Education

Curriculum Admissions Standards: Applicants to the Dental Hygiene Program must have completed the following: (a) Four units of high school English (b) One unit each of high school or college biology and chemistry (c) Two units of high school or college social studies (d) Two units of high school or college mathematics (Algebra I, Algebra II, or geometry). Developmental courses to overcome one or more deficiencies which may exist in the above areas are available andy may be taken at V.W.C.C. All applicants must complete the Health Programs application form available in the Counseling Office.

Priority consideration will be given to applicants with a high school and/or college grade point average of 2.5 or above.

Applicants who are currently enrolled in high school or who have completed **less than** 45 quarter hours or 30 semester hours of college work must submit ACT (American College Test) scores. Priority consideration will be given to applicants with a composite score of 18 or above.

Applicants who graduated from high school more than five (5) years prior to date of application who **have not** attempted any college work will not be required to submit ACT scores. It is strongly recommended that applicants in this category pursue career counseling prior to applying for program admission. This service is available through Counseling Services and/or the Dental Hygiene Department.

A personal interview with the Counseling Department and with a member of the Dental Hygiene Program faculty is required.

Early application is advisable due to the limited number of available slots. Upon notification of acceptance to the curriculum, applicants are required to submit a medical and dental report indicating good general health. Certification in cardiopulmonary resuscitation is required prior to beginning the Fall quarter of the first year of the program. It is highly recommended that all students admitted to the program receive the Hepatitis B vaccine. The program is open to male and female students.

Curriculum Completion Guidelines

I. Continuation in Program:

Satisfactory progress is demonstrated by achieving a grade of "C" or better in required Dental Hygiene and Natural Science courses. Because curriculum components build upon each other over the seven quarters, students achieving grades lower than "C" have not demonstrated competency in that subject matter necessary for continuing to the following quarter. Deficiencies may be handled in one of the following ways:

A. **Clinical deficiencies:** (Dental Hygiene courses only) A deficiency may occur in the clinical component of the dental hygiene curriculum when a student fails to meet specified clinical requirements. Clinical requirements are established by the departmental faculty and provide the basis for assessing the student's clinical ability in relation to level of education (i.e. quarter in the curriculum). Students not meeting specified clinical requirements must repeat those requirements in the following quarter. Progress can continue in the didactic component of the curriculum, however, the student will graduate one quarter late (i.e. will have one additional clinical quarter).

B. **Laboratory deficiencies** (Dental Hygiene courses only) Students who fail to meet laboratory requirements will be given a grade of "I" (Incomplete). Students must satisfactorily complete ("C" or better) stated requirements by the end of the 5th week of the following quarter. Failure to do so will result in an "F" for the course and the student will be required to repeat the entire course when it is next offered.

C. **Didactic deficiencies** (Dental Hygiene and Natural Science courses) Students achieving a final grade lower than a "C" in didactic courses must obtain permission from the Dental Hygiene Faculty Committee to continue in the program. Multiple course failures within any given quarter may result in the student being asked to seek career counseling and/or withdraw from the program.

II. Student Responsibilities:

Students in the program are responsible for transportation to and from agencies utilized for clinical experiences; purchase of student uniforms and accessories; and purchase of required student instrument kit. It is recommended that students purchase health insurance.

Accreditation Status:

The program has been accredited by the Commission on Dental Accreditation of the American Dental Association.

Dental Hygiene Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
*DENT	129	General and Oral Histology	2	0	2
*DENT	140	Introduction to Dental Hygiene	2	6	4
*DENT	167	Oral Anatomy	3	0	3
[2]ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
NASC	111	Health Science I	3	3	4
		Total	14	10	17
		Second Quarter			
[3]CHEM	107	Survey of Organic Chemistry	3	2	4
DENT	128	Head and Neck Anatomy	2	0	2
DENT	144	Dental Hygiene I	3	6	5
[2]ENGL	112	English Composition II	3	0	3
NASC	112	Health Science II	3	3	4
		Total	14	11	18
		Third Quarter			
DENT	146	Oral Radiographic Techniques	2	3	3
DENT	150	General and Oral Pathology	3	0	3
DENT	154	Periodontics for Dental Hygiene I	2	0	2
*DENT	158	Dental Hygiene II	1	9	4
NASC	113	Health Science III	3	3	4
		Total	11	15	16
		Summer Session (Five Weeks)			
DENT	147	Nutrition	3	0	3
DENT	155	Periodontics for Dental Hygiene II	2	0	2
*DENT	231	Dental Hygiene III	2	6	4
		Total	7	6	9
		Fourth Quarter			
*DENT	117	Dental Materials	2	3	3
DENT	136	Pharmacology	2	0	2
*DENT	174	Community Health I	2	0	2
*DENT	232	Dental Hygiene IV	1	15	6
PSYC	128	Human Relations	3	0	3
		Total	10	18	16
		Fifth Quarter			
DENT	139	Dental Assisting	3	0	3
*DENT	175	Community Health II	1	3	2
*DENT	233	Dental Hygiene V	1	15	6
SOCI	101	Introductory Sociology I	3	0	3
GOVT	180	American Constitutional Government	3	0	3
		Total	11	18	17
		Sixth Quarter			
DENT	148	Office Practice and Ethics	2	0	2
*DENT	234	Dental Hygiene	1	15	6
GOVT	160	Survey of American Economics	3	0	3
SPDR	137	Public Speaking	3	0	3
		Total	9	15	14

Total Minimum Credits for Degree 106

[1]GENL 198, 298 may be substituted for GENL 100.
[2]ENGL 101 and 102 may be substituted for ENGL 111 and 112.
[3]CHEM 140 or 121 may be substituted for CHEM 107.
—ENGL 113-optional, recommended—may be taken during summer.

*Pending Approval

EARLY CHILDHOOD DEVELOPMENT
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: This curriculum is designed to enable graduates to qualify as directors, assistant directors, teachers, assistant teachers or as classroom aides in program for young children. The curriculum has been established to provide competency in areas proposed by the professional child development community: ability to set up a safe and healthy environment, skills to advance the physical and intellectual competence of young children and to build positive self-concepts and individual strengths, the ability to organize and sustain positive functioning of children and adults in a group in a learning environment, to coordinate the home and out-of-home child rearing practices and expectations, and to carry out the supplementary responsibilities related to programs for children. In addition, this curriculum will prepare students for national assessment for the Child Development Associate.

Those students who are interested in working with special needs children should consult with the Early Childhood Development Staff.

In addition to the courses offered at the campus, courses are offered at child care centers and school sites. For information on establishing such courses, consult the Early Childhood Developmental Staff.

Occupational Objectives: Positions in independent child care centers and kindergartens, family day care homes, nursery schools, foster care providers, hospital centers, homemaker services, centers for children with special needs, residential child care facilities and industry associate centers. In addition, this program with appropriate electives qualifies graduates for positions as elementary school classroom aides.

Curriculum Admission Guidelines: A personal interview with the Counseling Department is a part of the admission process. The program is open to both male and female applicants. Satisfactory performance on an appropriate test may be required of those applicants whose records indicte academic weakness in English, reading or mathematics.

Curriculum Completion Guidelines: Students who receive a final grade lower than "C" in any of the courses in the Early Childhood Development sequence must be approved by the program faculty to continue the major in Early Childhood Development prior to repeating the course. Each student is responsible for transportation to and from field sites used for laboratory experience.

For those students who plan to transfer to a four-year college following the A.A.S. degree the optional track is recommended. Students are urged to consult the Early Childhood Development faculty members for electives and additional information.

Early Childhood Development Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
EDUC	120	Introduction to Early Childhood Education	3	0	3
[1]EDUC	190	Coordinated Internship	3	9-C	3
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1-0	1
HLTH	156	Child Health and Nutrition	3	0	3
PSYC	231	Human Growth and Development I	3	0	3
		Total	16	10	16
		Second Quarter			
EDUC	106	Language Arts for Young Children	3	0	3
EDUC	121	Early Childhood Education I	3	0	3
[1]EDUC	190	Coordinated Internship	4	9-C	4
ENGL	112	English Composition II	3	0	3
PSYC	232	Human Growth and Development II	3	0	3
		Total	16	9	16

		Third Quarter			
EDUC	122	Early Childhood Education II	3	0	3
EDUC	137	Creative Activities	3	0	3
[1]EDUC	190	Coordinated Internship	4	9-C	4
PHED	153	Swimming	0	2	1
PSYC	128	Human Relations	3	0	3
PSYC	233	Human Growth and Development III	3	0	3
		Total	16	11	17
		Fourth Quarter			
ECON	160	Survey of American Economics (or SOCI 101)	3	0	3
EDUC	210	Introduction to Special Education	3	0	3
EDUC	287	Management of Child Care Centers	3	0	3
SPDR	137	Public Speaking	3	0	3
E		Electives	4	0	4
		Total	16	0	16
		Fifth Quarter			
EDUC	140	Modern Mathematics Concepts	3	0	3
EDUC	175	Parent Education	3	0	3
GOVT	f180	American Constitutional Government (or SOCI 102)	3	0	3
[3]HLTH	104	First Aid	1	2	2
SOCI	166	School and Community Relations	3	0	3
SOCI	236	Marriage and Family	3	0	3
		Total	16	2	17
		Sixth Quarter			
EDUC	186	Child Study	2	3	3
EDUC	188	Affective Education in the Classroom	3	0	3
[2]EDUC	290	Coordinated Internship	0	9-C	3
MUSC	109	Music for Children	2	2	3
E		Electives	3	0	3
		Total	10	14	15

Total Minimum Credits for Degree 97

[1]Coordinate with Education 120, 121 and 122
[2]Coordinate with Education 188 and 186
[3]The Red Cross First Aid and Emergency Care Certificate may be substituted for HLTH 104
—It is recommended that sutdents use the summer session between freshman and sophomore years to take electives and classes recommended by the ECHD faculty.

Legend for Lab hours
C = Clinical
O = On Campus

Early Childhood Developmental Curriculum
(Optional Track)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
EDUC	120	Introduction to Early Childhood Education	3	0	3
[1]EDUC	190	Coordinated Internship	3	9-C	3
[3]ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
HLTH	156	Child Health and Nutrition	3	0	3
PSYC	231	Human Growth and Development I	3	0	3
		Total	16	10	16

Second Quarter

EDUC	106	Language Arts for Young Children	3	0	3
EDUC	121	Early Childhood Education I	3	0	3
[1]EDUC	190	Cooridnated Internship	3	9-C	4
[3]ENGL	112	English Composition II	3	0	3
PSYC	232	Human Growth and Development II	3	0	3
		Total	15	9	16

Third Quarter

EDUC	122	Early Childhood Education II	3	0	3
EDUC	137	Creative Activities	3	0	3
[1]EDUC	190	Coordinated Internship	3	9-C	
PHED	153	Swimming	0	2-0	1
PSYC	128	Human Relations	3	0	3
PSYC	233	Human Growth and Development III	3	0	3
		Total	15	11	17

Fourth Quarter

EDUC	210	Introduction to Special Education	3	0	3
EDUC	287	Management of Child Care Centers	3	0	3
SPDR	137	Public Speaking	3	0	3
SCIE	E	Science Elective	3	3	4
SOCI	101	Introductory Sociology I	3	0	3
		Total	15	3	16

Fifth Quarter

EDUC	140	Modern Mathematics Concepts	3	0	3
EDUC	175	Parent Education	3	0	3
SOCI	102	Introductory Sociology II	3	0	3
SOCI	236	Marriage and Family	3	0	3
SCIE	E	Science Elective	3	3	4
		Total	15	3	16

Sixth Quarter

EDUC	186	Child Study	3	0	3
EDUC	188	Affective Education in the Classroom	3	0	3
[2]EDUC	290	Coordinated Internship	0	9-C	3
MUSC	109	Music for Children	2	2-0	3
SCIE	E	Science Elective	3	3	4
		Total	11	14	16

Total Minimum Credits for Degree 97

[1]Coordinate with Education 120, 121 and 122
[2]Coordinate with Education 186 and 188
[3]It is recommended that students use the summer session between freshman and sophomore years to take electives and classes recommended by the ECD faculty.

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. Students who are considering certification in Early Childhood Education should consult the Early Childhood staff of the Virginia Western Community College. **Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with the counseling office of the community college in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.**

Curriculum Admission Guidelines: 4 units of English, 2 units of college preparatory mathematics, 1 unit of laboratory science, and 1 unit of social science. Developmental courses may be recommended for students with deficiencies in English and mathematics. Eligible students may qualify for the State Teachers' Scholarships

Education Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
HIST	101	History of Western Civilization I (or HIST 111)	3	0	3
MATH	161	College Mathematics (or MATH 181)	3	0	3
NS		Natural Science	3	3	4
E		Elective	3	0	3
		Total	16	4	17
		Second Quarter			
ENGL	112	English Composition II	3	0	3
HIST	102	History of Western Civilization II (or HIST 112)	3	0	3
MATH	162	College Mathematics (or MATH 182)	3	0	3
NS		Natural Science	3	3	4
E		Elective	3	0	3
		Total	15	3	16
		Third Quarter			
ENGL	113	English Composition III	3	0	3
HIST	103	History of Western Civilization III (or HIST 113)	3	0	3
MATH	163	College Mathematics (or MATH 183)	3	0	3
NS		Natural Science	3	3	4
E		Elective	3	0	3
		Total	15	3	16
		Fourth Quarter			
ECON	211	Principles of Economics	3	3	3
ENGL	251	Survey of American Literature I (or ENGL 261)	3	3	3
PSYC	201	General Psychology I	3	3	3
HE		Humanities Elective	3	0	3
E		Elective	3	0	3
		Total	15	9	15
		Fifth Quarter			
[3]ECON	212	Principles of Economics II	3	0	3
[2]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
ENGL	252	Survey of American Literature II (or ENGL 262)	3	0	3
PSYC	202	General Psychology II	3	0	3
E		Elective	3	0	3
		Total	15	0	15

Sixth Quarter

[3]ECON	213	Principles of Economics III	3	0	3
ENGL	253	Survey of American Literature III (or ENGL 263)	3	0	3
PSYC	203	General Psychology III	3	0	3
SPDR	137	Public Speaking	3	0	3
E		Electives	6	0	6
		Total	18	0	18

Total Minimum Credits for Degree 97

ELECTIVES — Electives must be selected from Education Curriculum Guide Sheet.

NS Natural Science—One year sequence in either BIOL 101, CHEM 111, GEOL 101, or PHYS 121.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[3]A full year sequence in another Social Science (GOVT or SOCI) may be substituted.

EDUCATION SECRETARY
(Career Studies)

Purpose: Designed for those employed as educational secretary. Provides general office and educational training.

Education Secretary Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ACCT	14	Bookeeping I (or ACCT 211)	2	2	2
EDUC	120	Introduction to Early Childhood Education (or EDUC 157)	3	0	3
EDUC	156	Fundamentals of School Law	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
HLTH	104	First Aid I	1	2	2
OFTC	100	Office Skills Review	3	0	3
OFTC	138	Simulation in Office Procedures	2	2	3
OFTC	139	Office Recordkeeping	3	0	3
SOSC	180	Problems of Man in the Modern World (or PSYC 128)	3	0	3
SOCI	166	School and Community Relations (or SOCI 101)	3	0	3
		Total	26	6	29

Total Minimum Credits for Career Studies Certificate 26

ELECTRICAL/ELECTRONICS ENGINEERING TECHNOLOGY
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The seven-quarter Associate Degree program in Electrical/Electronics Engineering Technology has been designed to prepare the graduate for a career in a broad spectrum of Electrical Engineering Technology roles. The curriculum is composed of a sequence of lecture and laboratory courses which have been planned and selected to provide both the theoretical foundation and the application experiences essential to the understanding of the complex principles and practices of the modern electronics field.

First year students receive instruction in English, social science, mathematics, and physics along with introductory and intermediate level electrical courses. Circuit analysis techniques, industrial practices, electronic devices, and measurement and instrumentation principles are presented.

The advanced courses of the second year provide an in-depth study in electronic circuit design (both analog and digital), and application-oriented sequences in electrical machinery, electronic communications, and computer based systems. In addition to the laboratory experiences

provided with each course, the student participates in a three-quarter shop and seminar-project program to develop basic skills in the fabrication of electronic devices.

Transfer opportunities exist for those desiring to complete a four-year program at certain institutions offering a baccalaureate degree in Engineering Technology.

Employment Opportunities: The curriculum is designed for persons seeking employment in a broad spectrum of Electrical Engineering Technology areas ranging from electronics, computer electronics, and communication systems, to electrical machinery, control systems, and the like. In addition, transfer opportunities exist for those desiring to complete a four-year program at certain institutions offering a baccalaureate degree in Engineering Technology.

Curriculum Admission Guidelines: Proficiency in high school English and 3 units of mathematics (2 units of algebra and 1 unit of geometry or trigonometry). Developmental courses may be recommended for students with deficiencies in English and mathematics.

Electrical/Electronics Engineering Technology Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	111	Introduction to Electrical Circuits	4	3	5
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
ENGR	100	Introduction to Engineering Technology	1	2	2
[1]GENL	100	Orientation	1	1	1
MATH	121	Engineering Technical Mathematics	5	0	5
		Total	14	6	16
		Second Quarter			
ELEC	112	Introduction to Electrical Circuits I	4	3	5
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
MATH	122	Engineering Technical Mathematics II	5	0	5
PHYS	121	Principles of Physics	3	3	4
		Total	15	6	17
		Third Quarter			
ELEC	113	Intermediate Electrical	3	0	3
ELEC	199	Supervised Study	0	0	2
ENGL		English (or SPDR 137)	3	0	3
MATH	123	Engineering Technical Mathematics III	5	0	5
PHYS	122	Principles of Physics II	3	3	4
		Total	14	3	17
		Fourth Quarter			
DRFT	158	Electrical-Electronics Drafting	1	3	2
ELEC	125	Introduction to Electronics	4	3	5
ELEC	211	Electrical Machines	3	3	4
ELEC	250	Introduction to Computers	3	3	4
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3
		Total	14	12	18
		Fifth Quarter			
ELEC	118	Introduction to Electrical Shop I	0	3	1
ELEC	201	Electrical Engineering Technology I	5	3	6
ELEC	212	Electrical Machines and Industrial	3	3	4
ELEC	237	Digital Logic Circuits	3	3	4
[2]GOVT	180	American Constitutional Government	3	0	3
		Total	14	12	18

		Sixth Quarter			
ELEC	119	Introduction to Electrical Shop	0	3	1
ELEC	202	Electrical Engineering Technology II	5	6	7
ELEC	239	Digital Logic Circuits II	2	2	3
ELEC	241	Communications I	3	3	4
[2]PSYC	128	Human Relations	3	0	3
		Total	13	14	18
		Seventh Quarter			
[2]ECON	160	Survey of American Economics	3	0	3
ELEC	203	Electrical Engineering Technology III	5	3	6
ELEC	225	Devices, Applications and Systems	3	3	4
ELEC	242	Communications II	3	3	4
ELEC	298	Seminar and Project	0	0	1
		Total	14	9	18

Total Minimum Credits for Degree 122

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

ELECTRICAL/ELECTRONICS TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE DEGREE
PART-TIME EVENING PROGRAM
A student will normally enter the program in the winter quarter.

Purpose: The purpose for the six quarter (equivalent) program is to provide a well planned program of instruction in General Electronics to those who are not able to participate in the seventh quarter full-time program. This program is available for part-time evening students. It offers the same core curriculum material as the day program but it does not provide the degree of **specialization** as the longer 7 quarter program. The goals of this uprogram are essentially the same as those of the day program, and the content and rigor of the commonly used courses are identical. Many of the courses offered in this evening program are scheduled and taught one quarter later than the same courses in the day program.

Employment Opportunities: The curriculum is designed for persons seeking employment in a broad spectrum of Electrical Engineering Technology areas ranging from electronics, computer electronics, and communication systems, to electrical machinery, control systems, and the like. In addition, transfer opportunities exist for those desiring to complete a four-year program at certain institutions offering a baccalaureate degree in Engineering Technology.

Curriculum Admission Guidelines: Proficiency in high school English and 3 units of mathematics (2 units of algebra and 1 unit of geometry or trigonometry). Developmental courses may be recommended for students with deficiencies in English and mathematics.

ELECTRICAL/ELECTRONICS TECHNOLOGY CURRICULUM

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	111	Introduction to Electrical Circuits	4	3	5
MATH	121	Engineering Technical Mathematics	5	0	5
		Total	9	3	10
		Second Quarter			
ELEC	112	Introduction to Electrical Circuits	4	3	5
MATH	122	Engineering Technical Mathematics II	5	0	5
		Total	9	3	10

		Third Quarter			
ELEC	113	Intermediate Electrical Circuits	3	0	3
ELEC	199				2
MATH	123	Engineering Technical Mathematics III	5	0	5
		Total	8	0	10
		Fourth Quarter			
ELEC	125	Introduction to Electronics	4	3	5
ELEC	150	Introduction to Communication Systems	3	3	4
		Total	7	6	9
		Fifth Quarter			
ELEC	145	Introduction to Electrical Machines	3	3	4
ELEC	201	Electrical Engineering Technology I	5	3	6
		Total	8	6	10
		Sixth Quarter			
ELEC	202	Electrical Engineering Technology II	5	6	7
		Total	5	6	7
		Seventh Quarter			
ELEC	203	Electrical Engineering Technology III	5	3	6
ELEC	237	Digital Logic Circuits	3	3	4
		Total	8	6	10
		Eighth Quarter			
ELEC	239	Digital Logic Circuits II	2	2	3
PHYS	121	Principles of Physics I	3	3	4
		Total	5	5	7
		Ninth Quarter			
ELEC	225	Devices, Applications and Systems	3	3	4
PHYS	122	Principles of Physics II	3	3	4
		Total	6	6	8
		Tenth Quarter			
DRFT	158	Electrical-Electronics Drafting	1	3	2
ENGR	100	Introduction to Engineering Technology	1	2	2
		Total	2	5	4
ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY QUARTER:					
[2]ECON	160	Survey of American Economics	3	0	3
ENGL	101	Communiction Skills I (or ENGL 111)	3	0	3
ENGL	102	Communication Skills II (or ENGL 112) (or SPDR 137)	3	0	3
ENGL		English	3	0	3
[1]GENL	100	Orientation	1	1	1
[2]GOVT	180	American Constitutional Government	3	0	3
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3
[2]PSYC	128	Human Relations	3	0	3
		Total	22	1	22

Total Minimum Credits for Degree 107

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

ELECTRONIC SERVICING
(Diploma)

Purpose: The curriculum is designed to meet present and future needs for trained electronic service personnel in and around the Roanoke area. Full-time employment may be sought immediately upon completion of this program.

Occupational Objectives: Electronics home entertainment servicing including color TV, radio, hi-fi, and FM stereo. Industrial electronic repair and maintenance MATV/CATV installer.

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Electronic Servicing

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ECON	160	Survey of American Economics	3	0	3
ELEC	11	Electricity I	4	0	4
ELEC	118	Introduction to Electrical Shop I	0	3	1
ENGL	166	College Reading	3	0	3
GENL	100	Orientation	1	1	1
MATH	11	Elements of Mathematics I	2	2	3
		Total	13	6	15
		Second Quarter			
ELEC	12	Electricity II	4	0	4
ELEC	119	Introduction to Electrical Shop II	0	3	1
ENGL	109	Communication in Business and Industry	3	0	3
MATH	12	Elements of Mathematics II	2	2	3
RDTV	74	Radio/TV Electronics I	3	3	4
		Total	12	8	15
		Third Quarter			
ELEC	40	Electronics	3	12	7
GOVT	180	American Constitutional Government	3	0	3
RDTV	75	Radio/TV Electronics	3	3	4
		Total	9	15	14
		Fourth Quarter			
ELEC	68	Electronics	3	8	6
PSYC	128	Human Relations	3	0	3
RDTV	51	Advanced Servicing and Troubleshooting Techniques I	3	6	6
		Total	9	14	15
		Fifth Quarter			
ELEC	27	Pulse Circuits	3	3	4
ELEC	150	Introduction to Communication Systems	3	3	4
RDTV	52	Advanced Servicing and Troubleshooting Techniques II	3	6	6
		Total	9	12	14
		Sixth Quarter			
BUAD	100	Introduction to Business	3	0	3
RDTV	53	Advanced Servicing and Troubleshooting Techniques III	3	6	6
RDTV	80	CET License Preparation	2	3	3
		Total	8	9	12

Total Minimum Credits for Degree 85

*ELECTRONIC SERVICING
(Certificate)

Purpose: This curriculum is designed to meet present and future needs for trained electronic service personnel in and around the Roanoke area. Full-time employment may be sought immediately upon completion of this program.

Occupational Objectives:

1) Home entertainment servicing, including TV, radio, stereo, VCR, computer or other electronic equipment
2) Repair or maintenance of office or audio/visual equipment.
3) Roanoke Valley Cable or similar companies who use service and installation personnel that require electronic training.
4) Sales or service manager where knowledge of technical aspects of electronic equipment is beneficial.

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

*Electronic Servicing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	110	Human Relations and Leadership Training	3	0	3
ELEC	11	Electricity I	4	0	4
ELEC	118	Electrical Shop I	0	3	1
RDTV	74	Radio/TV Electronics I	3	3	4
		Total	10	6	12
		Second Quarter			
ELEC	12	Electricity II	4	0	4
ELEC	119	Electrical Shop II	0	3	1
ENGL	109	Communications in Business & Industry	3	0	3
RDTV	75	Radio/TV Electronics II	3	3	4
		Total	10	6	12
		Third Quarter			
ECON	160	Survey of American Economics	3	0	3
ELEC	40	Electronics I	3	12	7
RDTV	51	Advanced Servicing Techniques I	3	6	6
		Total	9	18	16
		Fourth Quarter			
ELEC	68	Electronics	3	8	6
GOVT	180	American Constitutional Government	3	0	3
RDTV	52	Advanced Servicing Techniques II	3	6	6
		Total	9	14	15

Total Minimum Credits for Certificate 55

*Pending Approval

ELECTRONIC SERVICING
(Career Studies)

Purpose: This curriculum is designed to meet present and future needs for trained electronic service personnel in and around the Roanoke area. Full-time employment may be sought immediately upon completion of this program.

Occupational Objectives:

1) Home entertainment servicing, including TV, radio, stereo, VCR, computer or other electronic equipment.
2) Repair or maintenance of office or audio/visual equipment.
3) Roanoke Valley Cable or similar companies who use service and installation personnel that require electronic training.
4) Sales or service management where knowledge of technical aspects of electronic equipment is beneficial.

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Electronic Servicing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	11	Electricity I	4	0	4
ELEC	118	Electrical Shop I	0	3	1
RDTV	74	Radio/TV Electronics I	3	3	4
		Total	7	6	9
		Second Quarter			
ELEC	12	Electricity II	4	0	4
ELEC	119	Electrical Shop II	0	3	1
RDTV	75	Radio/TV Electronics II	3	3	4
		Total	7	6	9
		Third Quarter			
ELEC	40	Electronics I	3	12	7
RDTV	51	Advanced Servicing Techniques II	3	6	6
		Total	6	18	13
		Fourth Quarter			
ELEC	68	Electronics	3	8	6
RDTV	52	Advanced Servicing Techniques II	3	6	6
		Total	6	14	12

Total Minimum Credits for Career Studies Certificate 43

EMERGENCY MEDICAL ASSISTANT
(Career Studies)

Occupational Objective: The curriculum is primarily designed to train a person for the Rescue Squads and Emergency Room. The student will reach the Cardiac Technician's level upon graduation. State Bureau of Emergency Medical Services helps coordinate the program.

Emergency Medical Assistant Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
EMDT	111	Emergency Medical Services Technology I	3	3	4
EMDT	198	Seminar and Project	0	0	3
EMDT	199	Supervised Study	0	0	3
EMDT	211	Advanced Emergency Medical Services Technology I	3	3	4
EMDT	212	Advanced Emergency Medical Services Technology II	3	3	4
HLTH	126	Introduction to Medical Terminology	3	0	3
NURS	166	Pharmacology for Nurses I	3	0	3
PSYC	128	Human Relations	3	0	3
SPDR	136	Oral Communications	3	0	3
		Total	18	9	30

Total Credits Required for Career Studies Certificate 30

ENGINEERING
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 one of the following engineering fields:

Aerospace
Agriculture
Building
  Construction
Ceramics
Chemical
Civil
Electrical
Industrial
Mechanical
Metallurgical
Mining
Nuclear

Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with the counseling office of the community college in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.

Curriculum Admission Guidelines: 4 units of English; 4 units of mathematics (2 units of algebra, 1 unit of plane geometry, 1 unit of advanced math or trigonometry and solid geometry); 1 unit of laboratory science; and 1 unit of social studies. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Engineering Curriculum

Course Number	Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Quarter			
CHEM 111	General Inorganic Chemistry I	3	3	4
ENGL 111	English Composition I	3	0	3
ENGR 104	Introduction to Engineering	3	0	3
[2]HLTH 110	Concepts of Personal and Community Health (or Physical Education)	3	0	3
MATH 141	Introductory Mathematical Analysis	5	0	5
	Total	17	3	18
	Second Quarter			
CHEM 112	General Inorganic Chemistry II	3	3	4
ENGL 112	English Composition II	3	0	3
ENGR 105	Introduction to Engineering Methods	3	0	3
ENGR 121	Engineering Graphics	1	3	2
[1]GENL 100	Orientation	1	1	1
MATH 142	Introductory Mathematical Analysis II	5	0	5
	Total	16	7	18
	Third Quarter			
CHEM 113	General Inorganic Chemistry III	3	3	4
ENGL 113	English Composition III	3	0	3
ENGR 122	Engineering Graphics II	1	3	2
ENGR 140	Statics of Particles and Rigid Bodies	3	0	3
MATH 143	Introductory Mathematical Analysis III	5	0	5
	Total	15	6	17
	Fourth Quarter			
ECON 211	Principles of Economics I	3	0	3
ENGR 241	Mechanics of Particles	3	0	3
MATH 241	Advanced Mathematical Analysis I	4	0	4
PHYS 221	General University Physics I	3	3	4
[4]E	Elective	3	0	3
	Total	16	3	17
	Fifth Quarter			
ECON 212	Principles of Economics II	3	0	3
ENGR 242	Dynamics of Rigid Bodies	3	0	3
MATH 242	Advanced Mathematical Analysis II	4	0	4
PHYS 222	General University Physics II	3	3	4
[3]E	Humanities Elective	3	0	3
	Total	16	3	17
	Sixth Quarter			
ECON 213	Principles of Economics III	3	0	3
ENGR 206	Engineering Economy	3	0	3
ENGR 243	Mechanics of Deformable Solids	5	0	5
MATH 243	Advanced Mathematical Analysis III	4	0	4
PHYS 213	Engineering Physics III	3	0	3
	Total	18	0	18

Total Minimum Credits for Degree 105

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[3]Literature, English or Speech, Humanities or Philosophy.
[4]History (American or Western Civilization).

ENGINEERING/TECHNICAL ASSISTANT
(Certificate)

Purpose: The curriculum is designed to provide an opportunity for the student to specialize in specific engineering/technical areas.

Occupational Objectives: Graduates may consider a wide array of job opportunities in industry or receive a maximum of transfer credit and continue their education in a similar associate degree level curriculum offered by the College.

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Engineering/Technical Assistant Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
[1]DRFT	111	Technical Drafting I (or TECHNICAL ELECTIVE)	1	3	2
[2]ECON	160	Survey of American Economics	3	0	3
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
MATH	118	Introduction to Technical Mathematics	5	0	5
[1]TECH	E	Technical Elective	3	0	3
		Total	15	3	16
		Second Quarter			
[1]DRFT	112	Technical Drafting II (or TECHNICAL ELECTIVE)	1	3	2
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
MATH	121	Engineering Technical Mathematics I	5	0	5
[1]TECH	E	Technical Elective	3	0	3
		Total	15	3	16
		Third Quarter			
[1]DRFT	113	Technical Drafting III (or TECHNICAL ELECTIVE)	1	3	2
ENGL	113	English Composition (or SPDR 137)	3	0	3
ENGR	100	Introduction to Engineering Technology	1	2	2
[2]PSYC	128	Human Relations	3	0	3
[1]TECH	E	Technical Elective	3	0	3
		Total	11	5	13

Total Minimum Credits for Certificate 45

[1]Technical Elective - Requires Departmental Approval.
[2]A year sequence in Social Science may be substituted.

FINE ARTS
ASSOCIATE IN ARTS DEGREE

Purpose: The curriculum is designed for persons who plan to transfer to a four-year program in a professional art school or to a four-year program in fine arts. Students who are interested in art but who do not elect immediately to transfer will also find this program suited to their needs. **Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with the counseling office of the community college in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.**

Curriculum Admission Guidelines: A satisfactory aptitude in visual art is preferred for entry into the art program. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Fine Arts Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ARTS	121	Theory and Practice of Drawing	1	4	3
ARTS	154	Design I	1	4	3
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation (or GENL 198 or 298)	1	1	1
HIST	111	United States History (or HIST 101)	3	0	3
MATH	161	College Mathematics (or MATH 181)	3	0	3
		Total	12	9	16
		Second Quarter			
ARTS	122	Theory and Practice of Drawing	1	4	3
ARTS	155	Design II	1	4	3
ENGL	112	English Composition II	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
HIST	112	United States History (or HIST 102)	3	0	3
MATH	162	College Mathematics (or MATH 182)	3	0	3
		Total	14	8	18
		Third Quarter			
ARTS	123	Theory and Practice of Drawing	1	4	3
ARTS	156	Design III	1	4	3
ENGL	113	English Composition III	3	0	3
HIST	113	United States History (or HIST 103)	3	0	3
MATH	163	College Mathematics (or MATH 183)	3	0	3
		Total	11	8	15
		Fourth Quarter			
ARTS	111	History and Appreciation of Art I	3	0	3
ARTS	274	Introduction to Printmaking	1	4	3
ENGL	251	Survey of American Literature (or ENGL 261)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]SS		Social Science Elective	3	0	3
		Total	13	7	16
		Fifth Quarter			
ARTS	112	History and Appreciation of Art II	3	0	3
ARTS	275	Art Printmaking Workshop I	1	4	3
ENGL	252	Survey of American Literature (or ENGL 262)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]SS		Social Science Elective	3	0	3
		Total	13	7	16
		Sixth Quarter			
ARTS	113	History and Appreciation of Art III	3	0	3
ARTS	276	Art Printmaking Workshop II	1	4	3
ENGL	253	Survey of American Literature (or ENGL 263)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]SS		Social Science Elective	3	0	3
		Total	13	7	16

Total Minimum Credits for Degree 97

[1]Natural Science—one-year sequence in either BIOL 101, CHEM 101, GEOL 101, or PHYS 101.
[2]Social Science—one-year sequence in either ECON 211, GOVT 281, PSYC 201, or SOCI 101.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

FIRE FIGHTING AND PREVENTION
(Career Studies)

Occupational Objective: Training for positions in fire prevention and suppression, fire protection engineering, safety engineering, insurance inspection and investigation, industrial safety, and building inspection.

Fire Fighting and Prevention Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
BUAD	110	Human Relations & Leadership Training	3	0	3
ENGL	137	Technical Writing	3	0	3
FIRE	108	Fundamentals of Fire Suppression	3	0	3
FIRE	106	Fundamentals of Fire Service Administration	3	0	3
FIRE	111	Hazardous Materials I	3	0	3
FIRE	120	Fire Protection Equipment and Systems	3	0	3
FIRE	227	Building Construction and Codes	3	2	4
FIRE	237	Arson Detection and Investigation	3	0	3
HLTH	104	First Aid I	1	2	2
SPDR	136	Oral Communications	3	0	3
E		Electives	6	0	6
		Total	34	4	36

Total Credits Required for Career Studies Certificate 36

FLORAL DESIGN AND INDOOR PLANT CARE
(Career Studies)

Occupational Objectives: Positions requiring skills in selecting, installing and maintaining indoor plants; floral designer; florist sales work.

Floral Design and Indoor Plant Care Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
HORT	106	Fundamentals of Horticulture (or HORT 100)	3	0	3
HORT	137	Plantscaping for Interior Design	2	2	3
HORT	170	Floral Design and Arranging	2	0	2
[1]HORT	260	Flower Shop Mangement	2	2	3
HORT	266	House and Conservatory Plants	2	2	3
HORT	270	Floral Design and Arranging	0	4	2
HORT	276	Floral Design and Arranging	0	4	2
		Total	11	14	18

Total Credits Required for Career Studies Certificate 18

[1]With departmental approval a horticultural elective may be substituted.

GENERAL STUDIES
ASSOCIATE IN SCIENCE DEGREE

Purpose: The curriculum is designed for students who are uncertain about their vocational or educational goals. It offers sufficient flexibility so that students may take courses which are accepted in most four-year colleges and universities in a wide number of baccalaureate degree programs. It also provides greater opportunity than that offered in other college transfer programs for the student to take courses which emphasize areas of academic strength and interest. In addition, it is designed for students who want a broad two-year educational experience in a degree program but who do not intend to transfer.

Curriculum Admission Guidelines: 4 units of English; 2 units of college preparatory mathematics; 1 unit of laboratory science; and 1 unit of social science. Developmental courses may be recommended for students with deficiencies in English and mathematics.

General Studies Curriculum

Course Number	Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Quarter			
ENGL 111	English Composition I	3	0	3
GENL 100	Orientation (or GENL 198 or 298)	1	1	1
HIST 111	United States History I (or HIST 101)	3	0	3
[2]MATH 161	College Mathematics I (or MATH 181)	3	0	3
[3]NS	Natural Science	3	3	4
[1]E	Elective	3	0	3
	Total	16	4	17
	Second Quarter			
ENGL 112	English Composition II	3	0	3
HIST 112	United States History II (or HIST 102)	3	0	3
[2]MATH 162	College Mathematics II (or MATH 182)	3	0	3
[3]NS	Natural Science	3	3	4
E	Elective	3	0	3
	Total	15	3	16
	Third Quarter			
ENGL 113	English Composition III	3	0	3
HIST 113	United States History III (or HIST 103)	3	0	3
[2]MATH 163	College Mathematics III (or MATH 183)	3	0	3
[3]NS	Natural Science	3	3	4
E	Elective	3	0	3
	Total	15	3	16
	Fourth Quarter			
ENGL 251	Survey of American Literature (or ENGL 261)	3	0	3
PSYC 201	Introduction to Psychology	3	0	3
SPDR 137	Public Speaking	3	0	3
[1]SSE	Social Science Elective (or Humanities Elective)	3	0	3
E	Elective	3	0	3
	Total	15	0	15
	Fifth Quarter			
ENGL 252	Survey of American Literature II (or ENGL 262)	3	0	3
PSYC 202	Introduction to Psychology II	3	0	3
[1]SSE/HE	Social Science Elective (or Humanities Elective)	3	0	3
E	Electives	6	0	6
[4]HLTH 110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
	Total	18	0	18

Sixth Quarter

ENGL	253	Survey of American Literature III (or ENGL 263)	3	0	3
PSYC	203	Introduction to Psychology III	3	0	3
[1]SSE/HE		Social Science Elective (or Humanities Elective)	3	0	3
E		Electives	6	0	6
		Total	15	0	15

Total Minimum Credits for Degree 97

[1]Humanities Electives/Social Science Electives—must be selected from transfer courses listed on General Studies Curriculum Guide Sheet.
[2]A year's sequence in either mathematics or a natural science must be completed. Both should be taken by transfer students.
[3]NS—Natural Science—A year's sequence in either Mathematics or a Natural Science must be completed. Both should be taken by transfer students. If only a Natural Science is chosen, it must be PHYS 121 sequence.
[4]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

HORTICULTURE
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The horticulture program is designed to prepare students for employment in the horticulture industry or a related field and to provide training for those who are currently working in the field and want to improve and upgrade their existing knowledge and skills. The major part of the curriculum is devoted to specialized horticulture courses and to the development of technical and communication skills necessary for a successful career. During the second year of the two-year program the student has the option of specializing in either floriculture or landscape/grower. Two short programs, FLORAL DESIGN AND INDOOR PLANT CARE and LANDSCAPING AND OUTDOOR PLANT CARE, are available through the college's Career Studies Certificate Program for individuals who are not interested in completing the full two-year program.

Occupational Objectives:
Manager or employee in a nursery or greenhouse
Grounds maintenance operator or supervisor
Floral designed or manager of a florist shop
Employee in a retail horticulture business or a related industry

Cooperative Education: Students in this program will be provided an opportunity to obtain on-the-job training through cooperative arrangements between the college and prospective employers.

Curriculum Admission Guidelines: Proficiency in high school English and 1 unit of high school algebra. Deficiencies may be removed through developmental studies.

Transfer Arrangements: Virginia Western Community College and Ferrum College have developed an articulation agreement which will help VWCC horticulture graduates transfer without any loss of credits into the junior year of Ferrum College's Bachelor of Science Degree Program in Agriculture.

A plan has also been developed which will prepare students for transfer into the four-year horticulture program at VPI & SU. Under this plan a student will follow the normal curriculum program for VWCC science majors, with the exception that some of the science electives will be replaced by horticulture courses that VPI & SU has agreed to accept.

Specific details about transfer arrangements can be obtained from the horticulture department head.

Horticulture Technology Curriculum
Floriculture Option

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	121	Business Mathematics I	3	0	3
ENGL	101	Communications Skills I	3	0	3
[1]GENL	100	Orientation	1	1	1
HORT	100	Introduction to Horticulture	3	3	4
HORT	130	Environment Factors in Plant Growth	3	0	3
[3]PHED		Physical Education	0	2	1
		Total	13	6	15
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	102	Communication Skills II	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
HORT	146	Horticultural Botany	3	3	4
HORT	230	Greenhouse Management	2	2	3
[3]PHED		Physical Education	0	2	1
		Total	14	7	17
		Third Quarter			
BUAD	123	Business Mathematics III	3	0	3
HORT	107	Plant Propagation	2	0	3
HORT	257	Herbaceous Plants	2	2	3
[3]PHED		Physical Education	0	2	
SPDR	137	Public Speaking	3	0	3
E		Elective	3	0	3
		Total	13	4	16
		Second Year			
		Fourth Quarter			
BUAD	174	Small Business Management I	3	0	3
HORT	170	Floral Design and Arranging	2	0	2
HORT	217	Horticultural Plant Pathology	2	2	3
HORT	256	Woody Plants	2	2	3
HORT	266	House and Conservatory Plants	2	2	3
MKTG	109	Principles of Salesmanship	3	0	3
		Total	14	6	17
		Fifth Quarter			
[2]ECON	160	Survey of American Economics	3	0	3
HORT	120	Soils	3	3	4
HORT	137	Plantscaping for Interior Design	2	2	3
HORT	270	Floral Design and Arranging	0	4	2
[2]PSYC	128	Human Relations	3	0	3
E		Electives	1-3	0	1-3
		Total	12-14	9	16-18
		Sixth Quarter			
HORT	156	Greenhouse Crop Production	2	2	3
HORT	216	Horticultural Entomology	2	2	3
HORT	260	Flower Shop Management	2	2	3
HORT	276	Floral Design and Arranging	0	4	2
HORT	297	Cooperative Education	0	0	2-3
MKTG	100	Principles of Marketing	3	0	3
		Total	9	10	16-17

Total Minimum Credits for Degree 97

[1]GENL 198 or 298 may be taken in lieu of Gen 100 with counselor approval.
[2]A year sequence in either Economics, Government, Psychology, Sociology, or History may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

Horticulture Technology Curriculum
(Landscape/Grower Option)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	121	Business Mathematics I	3	0	3
ENGL	101	Communication Skills I	3	0	3
[2]GENL	100	Orientation	1	1	1
HORT	100	Introduction to Horticulture	3	3	4
HORT	130	Environmental Factors in Plant Growth	3	0	3
[3]PHED		Physical Education	0	2	1
		Total	13	6	15
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	102	Communication Skills II	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
HORT	146	Horticultural Botany	3	3	4
HORT	230	Greenhouse Management	2	2	3
[3]PHED		Physical Education	0	2	1
		Total	14	7	17
		Third Quarter			
BUAD	123	Business Mathematics III	3	0	3
HORT	107	Plant Propagation	2	2	3
HORT	257	Herbaceous Plants	2	2	3
[3]PHED		Physical Education	0	2	1
SPDR	137	Public Speaking	3	0	3
E		Electives	3	0	3
		Total	13	6	16
		Fourth Quarter			
BUAD	174	Small Business Management I	3	0	3
HORT	126	Landscape Construction and Maintenance	1	4	3
HORT	217	Horticultural Plant Pathology	2	2	3
HORT	256	Woody Plants	2	2	3
MKTG	109	Principles of Salesmanship	3	0	3
[1]PSCY	128	Human Relations	3	0	3
		Total	14	8	18
		Fifth Quarter			
[1]ECON	160	Survey of American Economics	3	0	3
HORT	110	Tools and Equipment	2	2	3
HORT	120	Soils	3	3	4
HORT	220	Nursery Management	2	2	3
HORT	250	Landscape Planning	0	4	2
E		Electives	2-3	0	2-3
		Total	12-13	11	17-18
		Sixth Quarter			
HORT	216	Horticultural Entomology	2	2	3
HORT	240	Turf Management	2	2	3
HORT	258	Landscape Drawing	2	3	3
HORT	297	Cooperative Education in Horticulture	0	0	2-3
MKTG	100	Principles of Marketing	3	0	3
		Total	9	7	14-15

Total Minimum Credits for Degree 97

[1]A year sequence in either Economics, Government, Psychology, Sociology, or History may be substituted.
[2]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

LANDSCAPING AND OUTDOOR PLANT CARE
(Career Studies)

Occupational Objectives: Landscape positions requiring skills in selecting, installing, and maintaining outdoor plants; nursery work; garden center sales.

Landscaping and Outdoor Plant Care Curriculum

Course Number	Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
HORT 106	Fundamentals of Horticulture (or HORT 100)	3	0	3
HORT 141	Horticulture and Landscaping (or HORT 126)	3	0	3
HORT 250	Landscape Planning	0	4	2
HORT 256	Woody Plants	2	2	3
HORT 258	Landscape Drawing (or HORT 240)	2	3	3
HE	Horticulture Electives	3	0	3
	Total	13	9	17

Total Credits Required for Career Studies Certificates 17

LEGAL AIDE
(Career Studies)

Occupational Objective: Designed to prepare student to enter the field of legal aide. Provides a background in legal areas such as history of the law and exploratory courses in the legal field.

Legal Aide Curriculum

Course Number	Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ENGL 137	Technical Writing	3	0	3
GOVT 180	American Constitutional Government	3	0	3
LEGL 110	An Overview of the Legal Process	3	0	3
LEGL 126	Legal Research	3	0	3
LEGL 134	Domestic Relations	3	0	3
LEGL 234	Estate Planning I	3	0	3
LEGL 240	Corporate Law	3	0	3
LEGL 244	Real Estate Abstracting I	3	0	3
LEGL 246	Law of Income Taxation	4	0	4
LEGL 251	Legal Transactions I	3	0	3
LEGL 257	Real Estate Law	3	0	3
LEGL 258	Administration of Decedent's Estates	3	0	3
PSYC 128	Human Relations	3	0	3
	Total	40	0	40

Total Credits Required for Career Studies Certificate 40

LEGAL ASSISTANT
(Certificate)

Occupational Objectives: Assist lawyers in legal research and in daily routine matters.

Legal Assistant Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ECON	160	Survey of American Economics	3	0	3
ENGL	137	Technical Writing	3	0	3
GOVT	180	American Constitutional Government	3	0	3
LEGL	110	An Overview of the Legal Process	3	0	3
LEGL	126	Legal Research	3	0	3
LEGL	134	Domestic Relations	3	0	3
LEGL	216	Introduction to Bankruptcy Practice	3	0	3
LEGL	234	Estate Planning I	3	0	3
LEGL	240	Corporate Law	3	0	3
LEGL	244	Real Estate Abstracting I	3	0	3
LEGL	246	Law of Income Taxation	4	0	4
LEGL	251	Legal Transactions I	3	0	3
LEGL	257	Real Estate Law	3	0	3
LEGL	258	Administration of Decedent's Estates	3	0	3
PSYC	128	Human Relations	3	0	3
LE		Legal Electives	6	0	6
		Total	52	0	52

Total Credits Required for Certificate 52

LIBERAL ARTS
ASSOCIATE IN ARTS DEGREE

Purpose: The curriculum is designed for persons who plan to transfer to a four-year program to complete a baccalaureate degree program, usually the Bachelor of Arts degree in the liberal arts or social sciences. Students in this program may wish to major in the following fields:

English
Foreign Language
Humanities
Journalism
Philosophy
Pre—Law
Social Sciences
Speech-Drama

Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with the counseling office of the community college in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.

Special Curriculum Admission Guidelines: 4 units of English; 2 units of college preparatory mathematics; 1 unit of laboratory science; and 1 unit of history. The remaining units are elective courses but at least two units of a foreign language are recommended. Students are urged to check the mathematics requirement of the four-year college or university to which they plan to transfer to determine the proper mathematics courses to be taken in the community college. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Liberal Arts Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation (or GENL 198 or 298)	1	1	1
HIST	101	History of Western Civilization (or HIST 111)	3	0	3
MATH	161	College Mathematics (or MATH 181)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]FL		Foreign Language Elective	3	2	4
		Total	16	6	18
		Second Quarter			
ENGL	112	English Composition II	3	0	3
HIST	102	History of Western Civilization (or HIST 112	3	0	3
MATH	162	College Mathematics (or MATH 182)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]FL		Foreign Language Elective	3	2	4
		Total	15	5	17
		Third Quarter			
ENGL	113	English Composition III	3	0	3
HIST	103	History of Western Civilization (or HIST 113)	3	0	3
MATH	163	College Mathematics (or MATH 183)	3	0	3
[1]NS		Natural Science Elective	3	3	4
[2]FL		Foreign Language Elective	3	2	4
		Total	15	5	17
		Fourth Quarter			
ENGL	251	Survey of American Literature (or ENGL 261)	3	0	3
[2]FL		Foreign Language	3	2	4
[3]SSE		Social Science Elective	3	0	3
[4]E		Electives	6	0	6
		Total	15	2	16
		Fifth Quarter			
ENGL	252	Survey of American Literature (or ENGL 262)	3	0	3
[2]FL		Foreign Language	3	2	4
SPDR	137	Public Speaking	3	0	3
[3]SSE		Social Science Elective	3	0	3
[4]E		Electives (Department approval)	3	0	3
		Total	15	2	16
		Sixth Quarter			
ENGL	253	Survey of American Literature (or ENGL 263)	3	0	3
[2]FL		Foreign Language	3	2	4
[3]SSE		Social Science Elective	3	0	3
[5]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
		Total	12	2	13

Total Minimum Credits for Degree 97

[1]NS - Natural Science - One year sequence in either BIOL 101, CHEM 111, GEOL 101, PHYS 121.
[2]FL - Foreign Language may be selected from Fren, Germ, or Span. Completion of intermediate level required for graduation. If the beginning level is not taken, 12 credit hours must be made up from the electives listed on the Curriculum Guide Sheet.
[3]SSE - Social Science Elective - select from Curriculum Guide Sheet.
[4]Electives must be selected from transfer courses listed on the Liberal Arts Curriculum Guide Sheet.
[5]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

MANAGEMENT
(Banking and Finance, Real Estate, Merchandising)

ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed for persons who seek full-time employment in business and industry upon completion of the community college curriculum. Individuals who are seeking initial employment in a managerial position and those presently in management who are seeking promotion may benefit from the curriculum.

Occupational Objectives:

- Management Training
- Supervision
- Real Estate Sales and Finance
- Retail Credit
- Rate Analyst
- Purchase Agent
- Sales Supervisor
- Other related traffic and transportation occupations

Curriculum Admission Guidelines: Minimum of two units of high school math, one of which must be algebra, or the equivalent, and proficiency in high school English. Developmental courses may be recommended for students with deficiencies in English and mathemtics.

Management Curriculum

Course Number		Course Title	Lecture Hours	Lab Hours	Course Credits
		First Year Curriculum			
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	100	Introduction to Business	3	0	3
BUAD	121	Business Mathematics I (or MATH 161)	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	111	English Composition I	3	0	3
[2]GENL	100	Orientation	1	1	1
		Total	16	1	16
		Second Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II (or MATH 162)	3	0	3
BUAD	164	Principles of Business Management	3	0	3
ENGL	112	English Composition II	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
OFTC	111	Typewriting I	2	3	3
		Total	17	3	18
		Third Quarter			
ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
MKTG	100	Principles of Marketing	3	0	3
[1]PSYC	128	Human Relations	3	0	3
		Total	15	0	15
		Fourth Quarter			
BUAD	241	Business Law I	3	0	3
BUAD	254	Applied Business Statistics I	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
DAPR	151	Basic For Microcomputers	2	2	3
[1]GOVT	180	American Constitutional Government	3	0	3
OFTC	248	Business Letter Writing	3	0	3
		Total	17	2	18

		Fifth Quarter			
ACCT	244	Taxes	3	0	3
BUAD	242	Business Law II	3	0	3
BUAD	246	Business Finance	3	0	3
BUAD	255	Applied Business Statistics I	3	0	3
DAPR	236	Data Processing Management	3	0	3
		Total	15	0	15
		Sixth Quarter			
BUAD	243	Business Law III	3	0	3
BUAD	245	Taxes II (or Business Elective)	3	0	3
BUAD	266	Financial Management	3	0	3
BUAD	276	Personnel Management	3	0	3
E		Elective	3	0	3
		Total	15	0	15
Total Minimum Credits for Degree					97

E - Elective may be any 100 or above level course.
BE - Business Electives must be selected from ACCT, BUAD, DAPR, MKTG, or OFTC courses.
[1]GOVT 281-282 or PSCY 201-202 may be substituted.
[2]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health and Physical Education.
[4]Student must take BUAD 123 regardless of math series.

Management Curriculum
(Banking and Finance)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	100	Introduction to Business	3	0	3
BUAD	121	Business Mathematics I (or MATH 161)	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	111	English Composition I	3	0	3
[2]GENL	100	Orientation	1	1	1
		Total	16	1	16
		Second Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II (or MATH 162)	3	0	3
BUAD	157	Principles of Bank Operations	3	0	3
BUAD	164	Principles of Business Management	3	0	3
ENGL	112	English Composition II	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
		Total	18	0	18
		Third Quarter			
ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
MKTG	100	Principles of Marketing	3	0	3
OFTC	111	Typewriting I	2	3	3
		Total	14	3	15
		Fourth Quarter			
BUAD	241	Business Law I	3	0	3
BUAD	254	Applied Business Statistics I	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
DAPR	151	Basic for Microcomputers	2	2	3
[1]GOVT	180	American Constitutional Government	3	0	3
OFTC	248	Business Letter Writing	3	0	3
		Total	17	2	18

		Fifth Quarter			
ACCT	244	Taxes	3	0	3
BUAD	242	Business Law II	3	0	3
BUAD	246	Business Finance	3	0	3
BUAD	255	Applied Business Statistics I	3	0	3
DAPR	236	Data Processing Management	3	0	3
		Total	15	0	15
		Sixth Quarter			
ACCT	245/BE	Taxes II	3	0	3
BUAD	243/BE	Business Law III	3	0	3
BUAD	266	Financial Management	3	0	3
BUAD	276	Personnel Management	3	0	3
[1]PSYC	128	Human Relations	3	0	3
		Total	15	0	15

Total Minimum Credits for Degree 97

BE - Business Electives must be selected from ACT, BUAD, DAPR, MKTG, or OFTC courses.
[1]GOVT 281-282 or PSCY 201-202 may be substituted.
[2]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[3]Three credits in Health or Physical Education are requried of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Student must take BUAD 123 regardless of math series.

Management Curriculum
(Merchandising)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	100	Introduction to Business	3	0	3
BUAD	121	Business Mathematics I	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	111	English Composition I	3	0	3
[2]GENL	100	Orientation	1	1	1
		Total	16	1	16
		Second Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II	3	0	3
BUAD	164	Principles of Business Management	3	0	3
ENGL	112	English Composition II	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
OFTC	111	Typewriting I	2	3	3
		Total	17	3	18
		Third Quarter			
ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
MKTG	100	Principles of Marketing	3	0	3
MKTG	136	Retail Organization & Management	3	0	3
		Total	15	0	15

		Fourth Quarter			
BUAD	241	Business Law I	3	0	3
BUAD	254	Applied Business Statistics I	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
MKTG	109	Principles of Salesmanship	3	0	3
MKTG	225	Principles of Advertising	3	0	3
		Total	15	0	15
		Fifth Quarter			
ACCT	244	Taxes	3	0	3
BUAD	242	Business Law II	3	0	3
BUAD	246	Business Finance	3	0	3
BUAD	255	Applied Business Statistics I	3	0	3
MKTG	226/ME	Merchandise Buying and Control	3	0	3
		Total	15	0	15
		Sixth Quarter			
ACCT	245/BE	Taxes II	3	0	3
BUAD	243	Business Law III	3	0	3
BUAD	276	Personnel Management	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
MKTG	290	Coordinated Practice in Marketing	0	0	3-5
[1]PSYC	128	Human Relations	3	0	3
		Total	15	0	18-20

Total Minimum Credits for Degree 97

BE - Business Electives must be selected from ACCT, BUAD, DAPR, MKTG, or OFTC courses.
ME - Marketing Elective.
[1]GOVT 281-282 or PSCY 201-202 may be substituted.
[2]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute elective for Health or Physical Education.
[4]Student must take BUAD 123 regardless of math series.

Management Curriculum
(Real Estate)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	100	Introduction to Business	3	0	3
BUAD	121	Business Mathematics I (or MATH 161)	3	0	3
ECON	160	Survey of American Economics (or ECON 211)	3	0	3
ENGL	111	English Composition I	3	0	3
[2]GENL	100	Orientation	1	1	1
		Total	16	1	16
		Second Quarter			
ACCT	212	Principles of Accounting II	3	0	3
BUAD	122	Business Mathematics II (or MATH 162)	3	0	3
BUAD	164	Principles of Business Management	3	0	3
ENGL	112	English Composition II	3	0	3
MKTG	164	Principles of Real Estate	3	0	3
		Total	15	0	15
		Third Quarter			
ACCT	213	Principles of Accounting III	3	0	3
[4]BUAD	123	Business Mathematics III	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
MKTG	100	Principles of Marketing	3	0	3
MKTG	165	Principles of Real Estate	3	0	3
		Total	15	0	15

Fourth Quarter

BUAD	241	Business Law I	3	0	3
BUAD	254	Applied Business Statistics I	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
MKTG	109	Principles of Salesmanship	3	0	3
OFTC	248	Business Letter Writing	3	0	3
		Total	15	0	15

Fifth Quarter

ACCT	244	Taxes	3	0	3
BUAD	242	Business Law II	3	0	3
BUAD	246	Business Finance	3	0	3
BUAD	255	Applied Business Statistics I	3	0	3
[4]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
MKTG	277/ME	Legal Aspects of Real Estate	3	0	3
		Total	18	0	18

Sixth Quarter

BUAD	243/BE	Business Law III	3	0	3
BUAD	276	Personnel Management	3	0	3
BUAD	266/or	Financial Management	3	0	3
MKTG	269	Real Estate Finance			
ENGL	113/or	English Composition III	3	0	3
SPDR	137	Public Speaking			
MKTG	268/ME	Property Management	3	0	3
[1]PSYC	128	Human Relations	3	0	3
		Total	18	0	18

Total Minimum Credits for Degree 97

E - Elective may be any 100 or above level course.
BE - Business Electives must be selected from ACCT, BUAD, DAPR, MKTG, or OFTC courses.
ME - Marketing Elective.
[1]GOVT 281-282 or PSCY 201-202 may be substituted.
[2]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute elective for Health or Physical Education.
[4]Student must take BUAD 123 regardless of math series.

MECHANICAL ENGINEERING TECHNOLOGY
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to develop qualified engineering technicians. Graduates may seek immediate employment or consider opportunities available for transfer to appropriate Bachelor of Technology Programs offered by some four-year universities.

Occupational Objectives: The Mechanical Engineering Technician usually serves as a liaison between the engineering and production departments working with the design and development of engineering plans. Responsibilities may include estimating, inspecting, and testing engineering equipment; operating, maintaining, and repairing engineering plants; research and development; sales and representation; training and education.

Curriculum Admission Guidelines: Proficiency in high school English and 2 units of mathematics (1 unit of algebra and 1 unit of geometry or trigonometry). Developmental courses may be recommended for students with deficiencies in English and mathematics.

Mechanical Engineering Technology Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
DRFT	111	Technical Drafting I	1	3	2
[2]ECON	160	Survey of American Economics	3	0	3
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
[1]GENL	100	Orientation	1	1	1
MATH	118	Introduction to Technical Mathematics	5	0	5
MECH	131	Machine Laboratory I	1	3	2
WELD	120	Fundamentals of Welding	1	3	2
		Total	15	10	18
		Second Quarter			
DRFT	112	Technical Drafting II	1	3	2
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
ENGR	100	Introduction to Engineering Technology	1	2	2
[2]GOVT	180	American Constitutional Government	3	0	3
MATH	121	Engineering Technical Mathematics I	5	0	5
MECH	132	Machine Laboratory II	1	3	2
		Total	14	8	17
		Third Quarter			
DRFT	113	Technical Drafting III	1	3	2
ENGL	113	English Composition III (or SPDR 137)	3	0	3
ENGR	151	Mechanics I (Statics)	4	0	4
MATH	122	Engineering Technical Mathematics II	5	0	5
MECH	176	Introduction to Numerical Control Machining	2	2	3
		Total	15	5	17
		Fourth Quarter			
ENGR	252	Engineering Mechanics II	4	0	4
MATH	123	Engineering Technical Mathematics III	5	0	5
MECH	256	Mechanisms	1	3	2
PHYS	121	Principles of Physics I	3	3	4
[2]PSYC	128	Human Relations	3	0	3
		Total	16	6	18
		Fifth Quarter			
CIVL	230	Structural Analysis	3	0	3
MATH	221	Advanced Engineering Technical Mathematics I (or Technical Elective)	4	0	4
MECH	257	Machine Design I	4	0	4
MECH	260	Thermodynamics I	4	0	4
PHYS	122	Principles of Physics II	3	3	4
		Total	18	3	19
		Sixth Quarter			
ELEC	214	Electricity	3	3	4
MECH	258	Machine Design II	4	0	4
MECH	268	Fluid Mechanics	4	0	4
PHYS	123	Principles of Physics II	3	3	4
		Total	14	6	16
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3

Total Minimum Credit for Degree 107

TE - CHEM 111-112, CIVL 217; DAPR 105-144; Others with departmental approval.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may sbustitute an elective for Health or Physical Education

MEDICAL ASSISTANT
(Career Studies)

Purpose: The medical assistant curriculum is designed to provide skills training and theoretical knowledge to employees who assist physicians in offices, clinics, and other facilities.

Occupational Objective: The program will focus on current office practice, including the use of computers and clinical competencies in accord with State laws. This program will also enhance the assistant's functions in the area of basic science, human relations, ethical and legal responsibilities and clerical activities.

Admission Requirements: The applicant should be a high school graduate or the equivalent with at least one year experience in a medical office. An English placement test and personal interview are part of the admission procedure.

Medical Assistant Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
DAPR	105	Computer Concepts with Application	2	2	3
ENGL	111	English Composition I	3	0	3
HLTH	101	Cardiopulmonary Resuscitation Modular System	0	1	1
HLTH	124	Medical Terminology I	3	0	3
MDAS	199	Medical Assistant Administration	3	3	4
MDAS	216	Medical Law and Ethics	3	0	3
MDAS	299	Medical Assistant Clinical Procedures	3	3	4
		Total	17	9	21

Total Minimum Credits for Career Studies Certificte 21

NOTE: Classesare scheduled with the "working student" in mind. The program may be completed in one calendar year (4 quarters). Other arrangements are possible.

MEDICAL TRANSCRIPTIONIST
(Certificate)

Purpose: The curriculum is designed to prepare selected students to qualify as contributing members of the health-care team.

Occupational Objectives: Medical transcriptionists are employed in departments of Medical Records, Radiology and Pathology in hospitals and other health care facilities. Employment in a physician's office may include medical transcription as well as general office work.

Curriculum Admission Guidelines: The applicant should have completed four units of high school English, one unit of high school laboratory science (Preferably biology), two units of social studies, one unit of high school mathematics, and two units of high school typewriting or the equivalent. Developmental courses may be recommended for students with deficiencies in English and mathematics. Priority will be given to applicants with high class standing. A personal interview with the Counseling Department and Medical Transcriptionist faculty is part of the admission process. Considering the limited available slots, early application is highly advisable. Upon notification of acceptance to the curriculum, applicants are requested to submit a medical report indicating good health. The student will be responsible for transportation to and from agencies utilized for clinical experience. The program is open to both male and female students.

Curriculum Completion Guidelines: Students who receive a final grade lower than "C" in any of the courses in the Medical Transcriptionist sequence must be recommended by the instructor and approved by the Division Chairman to continue in the major.

Medical Transcriptionist Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	0	1
HLTH	124	Medical Terminology I	3	0	3
NASC	111	Health Science I	3	3	4
OFTC	112	Typewriting II	2	3	3
		Total	12	6	14
		Second Quarter			
ENGL	112	English Composition II	3	0	3
GOVT	180	American Constitutional Government	3	0	3
HLTH	125	Medical Terminology II	2	0	2
OFTC	113	Typewriting III	2	3	3
OFTC	136	Filing and Records Managements	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	16	3	17
		Third Quarter			
ECON	160	Survey of American Economics	3	0	3
ENGL	113	English Composition III	3	0	3
MDRS	190	Coordinated Practice	0	0	4
OFTC	144	Proofreading and Editing Skills	3	0	3
OFTC	145	Beginning Machine Transcription	2	2	3
		Total	11	2	16
		Fourth Quarter			
MDRS	160	Coordinated Practice	0	0	9
WOPR	216	Word Processing Equipment Operation	2	3	3
		Total	2	3	12
Total Minimum Credits for Certificate					59

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.

MENTAL HEALTH
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: Mental Health course work prepares students for either entry-level positions in the helping fields or transfer to a bachelor degree program. Through courses and field placements in agencies, students develop skills in working with the mentally, physically, and emotionally handicapped, the aged, the poor, the juvenile delinquent, the substance abuser, and the child or adult in crisis.

Depending on their future educational and occupation needs, students may choose either the clinical track or the optional transfer track. Students in the **Clinical Track** participate in a greater number of field placements, which enhance the possibility of immediate employment after graduation. Students in the **Optional Track** have a greater number of electives, so that they may fulfill requirements for entrance into a four year program.

Students must declare their intentions to complete either track by the end of their first year. Faculty will arrange individual consultations with students to help them with career planning.

Occupational Objectives: Employment opportunities for graduates in the Mental Health Clinical Track include staff positions in hospitals, mental health clinics, group homes, training centers and community service agencies.

Graduates in the Mental Health **Optional Track** may transfer to an accredited college or university for bachelor degrees in fields such as social work, psychology, special education, gerontology, and human resources.

Mental Health Curriculum
(Clinical Track)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
GOVT	180	American Constitution Government	3	0	3
HLTH	100	Orientation to Allied Health Careers	1	0	1
MENT	101	Introduction to Mental Health I	2	3	3
MENT	102	Introduction to Mental Health II	2	3	3
SOCI	186	Social Problems (or SOCI 101)	3	0	3
		Total	15	7	17
		Second Quarter			
ENGL	112	English Composition II	3	0	3
MENT	103	Introduction to Mental Health III	2	3	3
MENT	190	Coordinated Practice in Mental Health	3	5	3
MENT	221	Mental Health I	3	0	3
PSYC	260	Introduction to Behavior Modification	3	0	3
SOCI	236	Marriage and the Family (or SOCI 102)	3	0	3
		Total	17	8	18
		Third Quarter			
ENGL	113	English Composition III (or SPDR 137)	3	0	3
PSYC	208	Psychology of Abnormal Behavior	3	0	3
MENT	190	Coordinated Practice in Mental Health	2	12	4
SOCI	187	Social Problems (or SOCI 103)	3	0	3
E		Elective	3	0	3
		Total	14	12	16

Course Number		Course Title	Lecture Hours	Lab Hours	Course Credits
		Fourth Quarter			
MENT	104	Introduction to Mental Health I	2	3	3
MENT	222	Mental Health II	3	0	3
MENT	236	Problems in Adolescence	3	0	3
MENT	290	Coordinated Practice in Mental Health	2	12	5
PSYC	231	Human Growth and Development I (or PSYC 202)	3	0	3
		Total	13	15	17
		Fifth Quarter			
HLTH	110	Concepts of Personal and Community Health	3	0	3
MENT	105	Introduction to Mental Health II	2	3	3
MENT	223	Mental Health III	3	0	3
PSYC	232	Human Growth and Development II (or PSYC 202)	3	0	3
[1]E		Electives	6	0	6
		Total	17	3	18
		Sixth Quarter			
ECON	160	Survey of Americanm Economics	3	0	3
MENT	290	Coordinated Practice in Mental Health	2	12	5
MENT	298	Seminar and Project in Mental Health	0	0	3
PSYC	233	Human Growth and Development III (or PSYC 203)	3	0	3
[1]E		Electives	3	0	3
		Total	11	12	17
Total Minimum Credits for Degree					103

[1]Elective may be any 100 or above level course.

Mental Health Curriculum
(Optional Track)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
HLTH	100	Orientation to Allied Health Careers	1	0	1
MENT	101	Introduction to Mental Health I	2	3	3
MENT	102	Introduction to Mental Health II	2	3	3
[2]SOCI	101	Introductory Sociology I	3	0	3
		Total	12	7	14
		Second Quarter			
ENGL	112	English Composition II	3	0	3
MENT	103	Introduction to Mental Health III	2	3	3
MENT	190	Coordinated Practice in Mental Health	3	5	3
MENT	221	Mental Health I	3	0	3
PSYC	260	Introduction to Behavior Modification	3	0	3
[2]SOCI	102	Introductory Sociology II	3	0	3
		Total	17	8	18
		Third Quarter			
ENGL	113	English Composition III (or SPDR 137)	3	0	3
HLTH	110	Concepts of Personal and Community Health	3	0	3
PSYC	208	Psychology of Abnormal Behavior	3	0	3
[2]SOCI	103	Introductory Sociology III	3	0	3
[1]E		Electives (Two)	6	0	6
		Total	18	0	18

		Fourth Quarter			
MENT	104	Introduction to Mental Health I	2	3	3
MENT	222	Mental Health II	3	0	3
MENT	236	Problems in Adolescence	3	0	3
MENT	290	Coordinated Practice in Mental Health	2	12	5
[2]PSYC	201	Introduction to Psychology	3	0	3
		Total	13	15	17
		Fifth Quarter			
MENT	105	Introduction to Mental Health II	3	0	3
MENT	223	Mental Health III	3	0	3
[2]PSYC	202	Introduction to Psychology	3	0	3
[1]E		Electives	6	0	6
		Total	15	0	15
		Sixth Quarter			
ECON	160	Survey of American Economics	3	0	3
MENT	298	Seminar and Project in Mental Health	0	0	3
[2]PSYC	203	Introduction to Psychology	3	0	3
[1]E		Electives	9	0	9
		Total	15	0	18

Total Minimum Credits for Degree 100

[1]Elective may be any 100 or above level course.
[2]Students may also substituted SOCI 186-187-188 for SOCI 101-102-103 or PSYC 231-232-233 for PSYC 201-202-203.

METAL PROCESSING
(Career Studies)

Purpose: The curriculum is designed to prepare selected students for entry level positions in metal working oriented industries or for upgrading existing skills of those currently employed in the field.

Occupational Objectives: Initial employment in metal processing industries or improved employment opportunity.

Curriculum Admission Guidelines: A high school diploma, GED, or the equivalent is recommended.

Metal Processing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
DRFT	171	Blueprint Reading I	1	3	2
MECH	131	Machine Laboratory I	1	3	2
WELD	120	Fundamentals of Welding	1	3	2
		Total	3	9	6
		Second Quarter			
DRFT	172	Blueprint Reading II	1	3	2
MECH	132	Machine Laboratory II	1	3	2
WELD	121	Oxyacetylene Welding & Cutting	1	3	2
		Total	3	9	6
		Third Quarter			
MECH	176	Numerical Control Machining	2	2	3
SAFE	176	Principles of Industrial Safety	2	0	2
WELD	122	Arc Welding	1	3	2
		Total	5	5	7

Total Minimum Credits for Career Studies Certificate 19

NURSING
ASSOCIATE IN APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare selected students to qualify as contributing members of the health team rendering direct patient care as beginning practitioners in a variety of health service facilities. At the successful completion of the program, students will be eligible to take the State Board examination leading to licensure as a registered nurse (R.N.).

Occupational Objectives: Employment opportunities for the Registered Nurse include staff positions in hospitals, nursing homes, health departments, physicians' offices, clinics, day care centers, and home health agencies.

Admission Guidelines:

1) The applicant must hold a high school diploma or the equivalent and have completed one unit of high school or college chemistry and biology with a grade of "C" or better. If the applicant is deficient in these courses, CHEM 05 and its prerequisite, MATH 06 (or proficiency in ALGEBRA I), and BIOL 101 may be satisfactorily completed at Virginia Western prior to acceptance into the nursing program.

2) The applicant's current grade point average (G.P.A.) must be at least 2.0.

3) The applicant must take a pre-nursing standardized National League for Nursing test, the PAX—R.N. The fee for this test is $15.00 payable at the time of the test. The test is administered at Virginia Western to first time applicants on selected dates (available upon request to the Health Technology Division). Preference will be given to applicants who score in the 50th percentile or above.

4) Final admission is contingent upon a satisfactory medical and dental examination. Results must be returned to the Nursing Program Head in the Health Technology Division 30 days before Fall classes begin. This health history must include evidence of Rubella (German Measles) Screening and/or vaccine, and Tuberculin Skin Test (or chest x-ray).

5) Verification of current C.P.R. certification will be required prior to the beginning of nursing classes.

6) The student is responsible for transportation to and from agencies utilized for clinical experience and the purchase of student uniforms and accessories.

Advanced Placement: L.P.N.s may challenge the first quarter of nursing by scoring at least 75 on a faculty prepared examination.

Students who have withdrawn from other nursing education programs will be considered on an individual basis.

All inquiries for advanced placement must be directed to the Nursing Program Head.

Curriculum Completion Guidelines: Successful completion of the program requires the student to maintain both a "C" or better in all nursing and natural science courses and a "Satisfactory" in the clinical performance.

Students who have withdrawn from the nursing program for any reason and desire readmission may request this in writing to the Program Head no later than August 1.

A complete statement of these policies is contained in the **Nursing Handbook**, which is available in the office of the Division of Health Technology.

Nursing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I (or ENGL 101)	3	0	3
GENL	100	Orientation	1	0	1
NASC	111	Health Science	3	3	4
*NURS	130	Introduction to Nursing	6	3-0 6-C	9
		Total	13	13	17
		Second Quarter			
ENGL	112	English Composition II (or ENGL 102)	3	0	3
NASC	112	Health Science II	3	3	4
*NURS	134	Minor Variations in Basic Human Needs I	6	3-0 6-C	9
		Total	12	12	16
		Third Quarter			
ENGL	113	English Composition III (or SPDR 137)	3	0	3
NASC	113	Health Science	3	3	4
*NURS	135	Minor Variations in Basic Human Needs II	6	12-C	10
		Total	12	15	17
		Fourth Quarter			
[1]ECON	160	Survey of American Economics	3	0	3
[2]HLTH	101	Cardiopulmonary Resuscitation Modular System	1	0	1
*NURS	231	Major Variations in Basic Human Needs II	6	12-C	10
PSYC	201	General Psychology II	3	0	3
		Total	13	12	17
		Fifth Quarter			
PSYC	202	General Psychology II	3	0	3
[1]GOVT	180	American Constitutional Government	3	0	3
*NURS	232	Major Variations in Basic Human Needs II	6	12-C	10
		Total	12	12	16
		Sixth Quarter			
PSYC	208	Psychology of Abnormal Behavior	3	0	3
[3]E		Elective	3	0	3
*NURS	233	Major Variations in Basic Human Needs III	6	12-C	10
		Total	12	12	16

Total Minimum Credits for Degree 99

[1]A social science sequence (two quarters) may be substituted for ECON 160 and GOVT 180 for students who plan to transfer to four year institutions.
[2]HLTH 101-appropriate transfer credit for CPR will be accepted.
[3]ELECTIVE—recommended SOCI 186, SOCI 187; PSYC 231, 232 or 233.

*Pending approval

Legend for Lab Hours
O = On Campus
C = Clinical

NURSING ASSISTANT
(Career Studies)

Purpose: The curriculum is designed to prepare selected students in basic nursing care of the patient in the extended care or acute care facility as well as the home setting. Upon successful completion of the program, the student will have the necesary competencies to function under the supervision of a licensed nurse.

Occupational Objectives: Nursing Assistants holding certificates of successful completion of a State approved program that includes geriatric and home health care components are eligible for employment in nursing homes, hospitals, and other medical health facilities. Graduates may be placed on registers to provide home-health care for both acute and chronic patients who opt to remain at home.

Curriculum Admission Guidelines: Interested students are requested to contact the Health Technology Division office to place their names on the Nursing Assistant Program Registry. Students are contacted for a personal interview with nursing faculty prior to acceptance into the upcoming class. A high school diploma, GED, or the equivalent is recommended.

Nursing Assistant Curriculum

*Each quarter is taught in a five-week session.

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		***First Quarter**			
NURS	20	Nursing Assistant	2	4	4
NURS	98	Seminar & Project	1	2	2
HLTH	101	Cardiopulmonary Resuscitation	0	1	1
		Total	3	7	7
		***Second Quarter**			
NURS	21	Nursing Assistant, Advanced	2	4	4
NURS	90-I	Coordinated Practice	0	3	1
		Total	2	7	5
		***Third Quarter**			
NURS	35	Home Health Aide	3	3	4
NURS	90-II	Coordinated Practice	0	3	1
		Total	3	6	5

Total Minimum Credits for Career Studies Certificate 17

OFFICE SYSTEMS TECHNOLOGY
(Executive, Legal, Medical, Word Processing)

ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: The curriculum is designed to prepare persons for full-time employment upon completion of the community college program. Individuals who are seeking initial employment in an office position and those who are seeking promotion may benefit from this curriculum.

Occupational Objectives:

Executive Secretary	Stenographer	Administrative Assistant
Legal Secretary	Word Processor	Related Office Occupations
Medical Secretary		

Curriculum Admission Guidelines: Minimum of two units of high school mathematics, one of which must be algebra or the equivalent, and proficiency in high school English. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Office Systems Technology Curriculum (Executive Secretary)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business (or BUAD 164)	3	0	3
BUAD	121	Business Mathematics I	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
OFTC	111	Typewriting I	2	3	3
OFTC	121	Shorthand I	3	2	4
		Total	15	6	17
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	112	English Composition II	3	0	3
OFTC	112	Typewriting II	2	3	3
OFTC	122	Shorthand II	3	2	4
OFTC	144	Proofreading and Editing Skills	3	0	3
		Total	14	5	16
		Third Quarter			
ACCT	211	Principles of Accounting I	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
[4]OFTC	113	Typewriting III	2	3	3
OFTC	123	Shorthand III	3	2	4
OFTC	136	Filing and Records Management	3	0	3
		Total	14	5	16
		SECOND YEAR **Fourth Quarter**			
OFTC	107	Typewriting Skill Building	2	2	3
OFTC	160	Orientation to Information Processing	1	0	1
OFTC	200	Introduction to Office Automation	3	0	3
OFTC	221	Advanced Shorthand and Transcription I	2	2	3
OFTC	241	Office Systems and Procedures	2	2	3
OFTC	248	Business Letter Writing	3	0	3
		Total	13	6	16
		Fifth Quarter			
BUAD	241	Business Law I	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
[4]OFTC	207	Executive Typewriting	2	2	3
OFTC	222	Advanced Shorthand and Transcription II	2	2	3
OFTC	242	Office Systems and Procedures	2	2	3
[2]PSYC	128	Human Relations	3	0	3
		Total	15	6	18
		Sixth Quarter			
BUAD	123	Business Mathematics III	3	0	3
[2]ECON	160	Survey of American Economics (or ECON 211)	3	0	3
[2]GOVT	180	American Consititutional Government	3	0	3
OFTC	223	Advanced Shorthand and Transcription III	2	2	3
OFTC	234	Machine Transcription I	2	2	3
OFTC	243	Office Systems and Procedures III	2	2	3
		Total	12	6	18

Total Minimum Credits for Degree 101

BE - Business Electives may be selected from ACCT, BUAD, MKTG, OR DAPR.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Minimum requirements must be met for OFTC 207; see instructor in OFTC 113.

Office Systems Technology Curriculum (Legal Secretary)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business (or BUAD 164)	3	0	3
BUAD	121	Business Mathematics I	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
OFTC	111	Typewriting I	2	3	3
OFTC	121	Shorthand I	3	2	4
		Total	15	6	17
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	112	English Composition II	3	0	3
OFTC	112	Typewriting II	2	3	3
OFTC	122	Shorthand II	3	2	4
OFTC	144	Proofreading and Editing Skills	3	0	3
		Total	14	5	16
		Third Quarter			
ACCT	211	Principles of Accounting I	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
[4]OFTC	113	Typewriting III	2	3	3
OFTC	123	Shorthand III	3	2	4
OFTC	136	Filing and Records Management	3	0	3
		Total	14	5	16
		SECOND YEAR **Fourth Quarter**			
BUAD	241	Business Law I	3	0	3
OFTC	107	Typewriting Skill Building	2	2	3
OFTC	160	Orientation to Information Processing	1	0	1
OFTC	200	Introduction to Office Automation	3	0	3
OFTC	221	Advanced Shorthand and Transcription I	2	2	3
OFTC	241	Office Systems and Procedures I	2	2	3
		Total	13	6	16
		Fifth Quarter			
BUAD	242	Business Law II	3	0	3
[2]ECON	160	Survey of American Economics (or ECON 211)	3	0	3
[4]OFTC	207	Executive Typewriting	2	2	3
OFTC	231	Legal Shorthand Transcription I (or OFTC 222)	2	2	3
OFTC	248	Business Letter Writing	3	0	3
OFTC	264	Legal Secretarial Procedures I	2	2	3
		Total	15	6	18
		Sixth Quarter			
[2]GOVT	180	American Constitutional Government	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
OFTC	232	Legal Shorthand Transcription II (OFTC 223)	2	2	3
OFTC	234	Machine Transcription I	2	2	3
OFTC	265	Legal Seretarial Procedures II	2	2	3
[2]PSYC	128	Human Relations	3	0	3
		Total	15	6	18
Total Minimum Credits for Degree					101

BE - Business Electives may be selected from ACCT, BUAD, MKTG, or DAPR.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Minimum requirements must be met for OFTC 207; see instructor in OFTC 113.

Office Systems Technology Curriculum (Medical Secretary)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business (or BUAD 164)	3	0	3
BUAD	121	Business Mathematics I	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
OFTC	111	Typewriting I	2	3	3
OFTC	121	Shorthand I	3	2	4
		Total	15	6	17
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	112	English Composition II	3	0	3
OFTC	112	Typewriting II	2	3	3
OFTC	122	Shorthand II	3	2	4
OFTC	144	Proofreading and Editing Skills	3	0	3
		Total	14	5	16
		Third Quarter			
ACCT	211	Principles of Accounting I	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
[4]OFTC	113	Typewriting III	2	3	3
OFTC	123	Shorthand III	3	2	4
OFTC	136	Filing and Records Management	3	0	3
		Total	14	5	16
		SECOND YEAR **Fourth Quarter**			
BIOL	154	Human Anatomy and Physiology (or HLTH 124)	3	3	4
OFTC	107	Typewriting Skill Building	2	2	3
OFTC	160	Orientation to Information Processing	1	0	1
OFTC	200	Introduction to Office Automation	3	0	3
OFTC	221	Advanced Shorthand and Transcription I	2	2	3
OFTC	241	Office Systems and Procedures	2	2	3
		Total	13	9	17
		Fifth Quarter			
BUAD	241	Business Law I	3	0	3
OFTC	207	Executive Typewriting	2	2	3
OFTC	222	Advanced Shorthand and Transcription II	2	2	3
OFTC	248	Business Letter Writing	3	0	3
OFTC	284	Medical Secretarial Procedures I	2	2	3
[2]PSYC	128	Human Relations	3	0	3
		Total	15	6	18
		Sixth Quarter			
ECON	160	Survey of American Economics	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
OFTC	226	Medical Shorthand Transcription (or OFTC 223)	2	2	3
OFTC	234	Machine Transcription I	2	2	3
OFTC	285	Office Systems and Management	2	2	3
		Total	15	6	18

Total Minimum Credits for Degree 102

BE - Business Electives may be selected from ACCT, BUAD, MKTG, or DAPR.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]GOVT 281-282 or PSCY 201-202 may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.
[4]Minimum requirements must be met for OFTC 207; see instructor in OFTC 113.

Office Systems Technology Curriculum (Word Processing)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BUAD	100	Introduction to Business (or BUAD 164)	3	0	3
BUAD	121	Business Mathematics I	3	0	3
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
OFTC	111	Typewriting I	2	3	3
OFTC	121	Shorthand I	3	2	4
		Total	15	6	17
		Second Quarter			
BUAD	122	Business Mathematics II	3	0	3
ENGL	112	English Composition II	3	0	3
OFTC	112	Typewriting II	2	3	3
OFTC	122	Shorthand II	3	2	4
OFTC	144	Proofreading and Editing Skills	3	0	3
		Total	14	5	16
		Third Quarter			
ACCT	211	Principles of Accounting I	3	0	3
ENGL	113	English Composition III (or SPDR 137)	3	0	3
OFTC	113	Typewriting III	2	3	3
OFTC	123	Shorthand III	3	2	4
OFTC	136	Filing and Records Management	3	0	3
		Total	14	5	16
		SECOND YEAR **Fourth Quarter**			
OFTC	107	Typewriting Skill Building	2	2	3
OFTC	160	Orientation to Information Processing	1	0	1
OFTC	200	Introduction to Office Automation	3	0	3
[5]OFTC	221	Advanced Shorthand and Transcription	2	2	3
OFTC	241	Office Systems and Procedures	2	2	3
OFTC	248	Business Letter Writing	3	0	3
		Total	13	6	16
		Fifth Quarter			
BUAD	241	Business Law	3	0	3
DAPR	106	Principles of Data Processing	3	0	3
[2]ECON	160	Survey of American Economics (or ECON 211)	3	0	3
[4]OFTC	207	Executive Typewriting	2	2	3
OFTC	216	Word Processing Equipment Operation	2	3	3
OFTC	242	Office Systems and Procedures II	2	2	3
		Total	15	7	18
		Sixth Quarter			
[2]GOVT	180	American Constitutional Government	3	0	3
[3]HLTH	110	Concepts of Personal & Community Health (or Physical Education)	3	0	3
OFTC	217	Advanced Word Processing Equipment Operation	2	3	3
OFTC	234	Machine Transcription I	2	2	3
OFTC	243	Office Systems and Procedures III	2	2	3
[2]PSYC	128	Human Relations	3	0	3
		Total	15	7	18

BE - Business Electives must be selected from ACCT, BUAD, MKTG, OR DAPR. Total Minimum Credits for Degree 101

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.

[2]GOVT 281-282 or PSYC 201-202 may be substituted.

[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical education.

[4]Minimum requirements must be met for OFTC 207; see instructor in OFTC 113.

[5]Must make C or better in OFTC 221.

RADIO AND TELEVISION PRODUCTION
ASSOCIATE IN
APPLIED SCIENCE DEGREE

Purpose: With the growth of commercial and educational broadcasting in Virginia, the need for personnel trained in radio and television is expanding. The curriculum is designed primarily for persons seeking employment in radio and television upon graduation.

Occupational Objectives:
Advertising Agency Assistant
Radio Program Producer
Script and Continuity Writer

Curriculum Admission Guidelines: Proficiency in high school English. It is recommended that applicants have a personal interview with the broadcasting faculty to discuss their educational goals and occupational objectives. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Radio & Television Production Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
BCST	110	Introduction to Radio/TV	3	0	3
BCST	111	Introduction to Radio/TV I	3	3	4
BCST	138	TV Studio Art I	3	0	3
ENGL	101	Communication Skills I (or ENGL 111)	3	0	3
[1]GENL	100	Orientation	1	1	1
SPDR	141	Voice and Diction	3	0	3
		Total	16	4	17
		Second Quarter			
BCST	112	Introduction to Radio/TV II	3	3	4
BCST	134	Speech for Radio/TV I	2	3	3
[2]ECON	160	Survey of American Economics	3	0	3
ENGL	102	Communication Skills II (or ENGL 112)	3	0	3
E		Elective	3	0	3
		Total	14	6	16
		Third Quarter			
PHTG	101	Photography	1	4	3
BCST	113	Introduction to Radio/TV III	3	3	4
BCST	135	Speech for Radio/TV II	2	3	3
ENGL	113	English Composition (or SPDR 137)	3	0	3
[2]GOVT	180	American Constitutional Government	3	0	3
		Total	12	10	16

		Fourth Quarter			
BCST	226	Writing for Radio/TV	3	0	3
BCST	281	Advanced Radio/TV Production I	3	6	5
BUAD	100	Introduction to Business	3	0	3
[2]PSYC	128	Human Relations	3	0	3
OFTC	111	Typewriting (or Elective)	2	3	3
		Total	14	9	17
		Fifth Quarter			
BCST	214	Technical Problems of Radio/TV I	3	0	3
BCST	216	Radio/TV Station Management and Operation	3	0	3
BCST	236	Broadcast Advertising & Sales	3	0	3
BCST	282	Advanced Radio/TV Production II	3	6	5
E		Elective	3	0	3
		Total	15	6	17
		Sixth Quarter			
BCST	215	Technical Problems of Radio/TV II	3	0	3
BCST	217	Radio/TV News	3	0	3
BCST	257	Social Problems in American Broadcasting	3	0	3
BCST	283	Advanced Radio/TV Production III	3	6	5
BCST	298	(or BCST 290/299)	2	0	2
		Total	14	6	16
[3]HLTH	110	Concepts of Personal and Community Health (or Physical Education)	3	0	3

Total Minimum Credits for Degree 102

E - Elective—Any 100 or above level course.
[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]A year sequence in Social Science may be substituted.
[3]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

RADIOGRAPHY

ASSOCIATE IN APPLIED SCIENCE DEGREE
(Radiography is a Twenty-Four Month Program)

Purpose: The curriculum is designed to prepare selected students to qualify as contributing members of the allied health team who care for patients under the supervision of qualified physicians. Upon completion of the curriculum which includes a three-month internship, the student is eligible to write the National Registry Examination leading to certification as a Registered Radiographer. Successful completion of the program will qualify a student to gain employment as a Radiographer.

Occupational Objectives: Positions are available in hospitals, education, industry, government agencies, radiologists offices and emergency care centers.

Curriculum Admission Guidelines:
1) The applicant should have completed two units of high school science (biology, chemistry, physics) and three units of high school mathematics (algebra I, algebra II, geometry) or the equivalent. Developmental courses may be recommended for students with deficiencies in English and mathematics.

2. The applicant's current G.P.A. (grade point average) must be at least 2.0.

3. A personal interview with the Counseling Department and Radiography faculty is a part of the admission process. Considering the limited available slots, early application is highly advisable.

4. Final admission is contingent upon a satisfactory medical and dental examination. Results must be returned to the Radiography Program Head in the Health Technology Division 30 days before Fall classes begin. This health history must include evidence of Rubella (German Measles) Screening and/or vaccine, and Tuberculin Skin Test (or chest x-ray).

5. Verification of current C.P.R. certification will be required prior to the beginning of radiography classes.

6. The student is responsible for transportation to and from agencies utilized for clinical experience and the purchase of student uniforms and accessories.

Advanced Placement: Students who have withdrawn or wish to transfer from other radiography education programs will be considered on an individual basis.

All inquiries for advanced placement must be directed to the Radiography Program Head.

Curriculum Completion Guidelines: Selected learning experiences will be provided at the cooperating hospitals within the geographic area served by the college.

Successful completion of the program requires the student to maintain both a "C" or better in all radiography and natural science courses and a "Satisfactory" in the clinical performance.

Students who receive a final grade lower than "C" in any of the courses must be recommended by the Program Head and approved by the Division Chairman to continue the major in Radiography prior to repeating the course.

A complete statement of these policies is contained in the **Radiography Handbook,** which is available in the office of the Division of Health Technology.

Accreditation Status: The curriculum has been approved by the authority of the Joint Review Committee on Education in Radiologic Technology, Council on Medical Education of the AMA, representing the ACR and the ASRT.

Radiography Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
GENL	100	Orientation	1	1	1
PHYS	101	Introductory Physics	3	3	4
NASC	111	Human Anatomy & Physiology	3	3	4
HLTH	124	Medical Terminology	3	0	3
RADL	110	Introduction to Radiology	3	0	3
RADL	190	Coordinated Practice	0	9-C	3
		Total	13	16	18

		Second Quarter			
**ENGL	111	English Composition	3	0	3
NASC	112	Human Anatomy & Physiology	3	3	4
RADL	114	Radiological Science I	3	3	4
RADL	124	Radiographic Procedures I	3	3	4
RADL	141	Elementary Clinical Procedures I	0	16-C	3
		Total	12	25	18
		Third Quarter			
**ENGL	112	English Composition	3	0	3
RADL	115	Radiological Science II	3	3	4
RADL	125	Radiographic Procedures II	3	3	4
RADL	142	Elementary Clinical Procedures II	0	16-C	3
*GOVT	180	American Constitutional Government	3	0	3
		Total	12	22	17
		Fourth Quarter			
RADL	145	Elementary Clinical Procedures	0	24-C	5
RADL	298	Seminar & Project (Scientific Paper)	1	0	1
ENGL	113	English Composition	3	0	3
*ECON	160	Survey of American Economics	3	0	3
*PSYC	128	Human Relations	3	0	3
		Total	10	24	15
		Fifth Quarter			
[2]RADL	120	Specialized Patient Care Procedures	3	0	3
RADL	116*	Radiological Science III	3	3-0	4
RADL	126	Radiographic Procedures III	3	3-0	4
RADL	241	Advanced Clinical Procedures I	0	24-C	5
RADL	276	Radl. Departmental Administration	1	0	1
		Total	10	30	17
		Sixth Quarter			
RADL	210	Radiation Protection & Radiobiology	3	0	3
RADL	242	Advanced Clinical Procedures II	0	24-C	5
RADL	246	Radiographic Pathology	3	0	3
RADL	259	Radiographic Film Evaluation	3	0	3
E		Elective	3	0	3
		Total	12	24	17
		Seventh Quarter			
RADL	216*	Radiological Science IV	3	3-0	4
RADL	226	Correlated Radiographic Theory	3	0	3
RADL	243	Advanced Clinical Procedures	0	24-C	5
RADL	250	Radiologic Specialties	3	0	3
		Total	9	27	15
		Eighth Quarter			
RADL	296	Applied Radiography	0	40-C	16
		Total	0	40	16

Total Minimum Credits for Degree 132

[1]A social science sequence may be substituted in lieu of PSYC 128, GOVT 180, ECON 160 with department approval.
[2]ENGL 101-102 and SPDR f137 may be substituted for ENGL 111-112-113.

*Pending Approval

—ELECTIVE: Recommend additional PHYS; DAPR 105, 151; SPDR 137.

SAVINGS AND LOAN ADMINISTRATION
(Certificate)

Occupational Objectives: Management Training, Supervision, Real Estate Finance.

Savings and Loan Administration Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
ACCT	211	Principles of Accounting I	3	0	3
BUAD	114	Principles of Supervision I	3	0	3
BUAD	115	Principles of Supervision II	3	0	3
BUAD	118	Real Estate Law - Savings and Loan I	3	0	3
BUAD	119	Real Estate Law - Savings and Loan II	3	0	3
BUAD	140	Introduction to Savings Association Business	3	0	3
BUAD	148	Savings Association Operations	3	0	3
BUAD	149	Savings Accounts	3	0	3
BUAD	236	Savings and Time Deposit Banking	3	0	3
BUAD	257	Home Mortgage Lending	3	0	3
ECON	211	Principles of Economics I	3	0	3
ENGL	137	Technical Writing	3	0	3
ENGL	180	Business English	3	0	3
GOVT	180	American Constitutional Government	3	0	3
MKTG	164	Principles of Real Estate I	3	0	3
MKTG	165	Principles of Real Estate II	3	0	3
PSYC	128	Human Relations	3	0	3
SPDR	137	Public Speaking	3	0	3
		Total	54	0	54

Total Credits Required for Certificate 54

Savings & Loan Assistant Curriculum
(Career Studies)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ACCT	211	Principles of Accounting I	3	0	3
BUAD	114	Principles of Supervision I	3	0	3
BUAD	115	Principles of Suprvision II	3	0	3
BUAD	118	Real Estate Law - Savings and Loan I	3	0	3
BUAD	119	Real Estate Law - Savings and Loan II	3	0	3
BUAD	140	Introduction to Savings Association Business	3	0	3
BUAD	236	Savings and Time Deposit Banking	3	0	3
BUAD	257	Home Mortgage Lending	3	0	3
ENGL	137	Technical Writing	3	0	3
GOVT	180	American Constitutional Government	3	0	3
MKTG	164	Principles of Real Estate I	3	0	3
MKTG	165	Principles of Real Estate II	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	39	0	39

Total Credits Required for Career Studies Certificate 39

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
Computer Science
Pre-Dentistry
Forestry
Geology
Home Economics
Horticulture
Mathematics
Pre-Medicine
Nursing
Pharmacy
Physical Therapy
Physics
Science Education
Pre-Veterinary

Students are urged to acquaint themselves with the requirements of the major department in the college or university to which transfer is contemplated and also to consult with their faculty adviser in planning their program and selecting electives. In order to prepare for junior class standing at a four-year college or university, the student usually must complete a program at the community college which is comparable in length and course content to the first two years of the program at the four-year institution.

Curriculum Admission Guidelines: 4 units of English: 3 units of college preparatory mathematics for science degree and 4 units for computer science specialization; 1 unit of laboratory science; and 1 unit of social science. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Science Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
[1]GENL	100	Orientation	1	1	1
HIST	101	History of Western Civilization I (or HIST 111)	3	0	3
MATH	161	College Mathematics I (or MATH 141)	3	0	3
[2]PHED		Physical Education	0	2	1
[4]SCIE		Science with laboratory	3	3	4
		Total	13	6	15
		Second Quarter			
ENGL	112	English Composition II	3	0	3
HIST	102	History of Western Civilization II (or HIST 112)	3	0	3
MATH	162	College Mathematics II (or MATH 142)	3	0	3
[2]PHED		Physical Education	0	2	1
[4]SCIE		Science with laboratory	3	3	4
E		General Elective	3-4	0	3-4
		Total	15-16	5	17-18

		Third Quarter			
ENGL	113	English Composition III	3	0	3
HIST	103	History of Western Civilization III (or HIST 113)	3	0	3
MATH	163	College Mathematics III (or MATH 143)	3	0	3
[2]PHED		Physical Education	0	2	1
[4]SCIE		Science with laboratory	3	3	4
E		General Elective	3-4	0	3-4
		Total	15-16	5	17-18
		Fourth Quarter			
MATH	150	Introduction to Computer Mathematics	2	2	3
[3]MATH	261	Advanced College Mathematics I (or MATH 281)	3	0	3
[4]SCIE		Science with laboratory	3	3	4
SSE		Social Science Elective	3	0	3
E		General Elective	3-4	0	3-4
		Total	14-15	5	16-17
		Fifth Quarter			
[4]SCIE		Science with laboratory	2-3	2-3	3-4
[4]SCIE		Science with laboratory	2-3	2-3	4
E		General Electives	6	0	6
SSE		Social Science Elective	3	0	3
		Total	13-15	4-6	16-17
		Sixth Quarter			
[4]SCIE		Science with laboratory	2-3	2-3	3-4
[4]SCIE		Science with laboratory	2-3	2-3	4
HE		Humanities Elective	3	0	3
E		General Elective	3-4	0	3-4
SSE		Social Science Elective	3	0	3
		Total	13-16	4-6	16-18

Total Minimum Credits for Degree 97

[1]GENL 198 or 298 may be taken in lieu of GENL 100 with counselor approval.
[2]Three credits in Health or Physical Education are required of all students except veterans. Veterans may substituted an elective for Health or Physical Education.
[3]Students who took MATH 141/142/143 may substitute MATH 241 or an elective.
[4]Lab Science. A minimum of 30 credit hours must be taken from the list on the Science curriculum guide sheet.

Science Curriculum
(Computer Science)

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ENGL	111	English Composition I	3	0	3
GENL	100	Orientation	1	1	1
HIST	101	History of Western Civilization I (or HIST 111)	3	0	3
MATH	141	Introductory Mathematics I	5	0	5
[2]PHED		Physical Education	0	2	1
SSE		Social Science Elective	3	0	3
		Total	15	3	16
		Second Quarter			
ENGL	112	English Composition II	3	0	3
HIST	102	History of Western Civilization II (or HIST 112)	3	0	3
MATH	142	Introductory Mathematics II	5	0	5
[2]PHED		Physical Education	0	2	1
SSE		Social Science Elective	3	0	3
		Total	14	2	15
		Third Quarter			
ENGL	113	English Composition III	3	0	3
HIST	103	History of Western Civilization III (or HIST 113)	3	0	3
MATH	143	Introductory Mathemataics III	5	0	5
[2]PHED		Physical Education	0	2	1
SSE		Social Science Elective	3	0	3
		Total	14	2	15
		Fourth Quarter			
CSCI	201	Principles of Computer Science I	4	0	4
MATH	241	Advanced Mathmatical Analysis I	4	0	4
MATH	281	Statistics I	3	0	3
PHYS	221	General University Physics I (or CHEM 111)	3	3	4
HE		Humanities Elective	3	0	3
		Total	17	3	18
		Fifth Quarter			
CSCI	202	Principles of Computer Science II	4	0	4
MATH	242	Advanced Mathematical Analysis II	4	0	4
MATH	282	Statistics II	3	0	3
PHYS	222	General University Physics II (or CHEM 112)	3	3	4
[1]E		General Elective	3	0	3
		Total	17	3	18
		Sixth Quarter			
CSCI	203	Principles of Computer Science III	4	0	4
PHYS	223	General University Physics III (or CHEM 113)	3	3	4
[1]E		General Elective	7	0	7
		Total	14	3	15

Total Minimum Credits for Degree 97

[1]Electives must be selected from transfer courses listed on Science Curriculum Guide Sheet
[2]Three credits in Health 110 or Physical Education are required of all students except veterans. Veterans may substitute an elective for Health or Physical Education.

WELDING
(Certificate)

Purpose: The curriculum is primarily designed to upgrade or initially train persons for full-time employment.

Occupational Objectives:

Arc, Gas, Mig and Tig Welding
Welding Supervisor
Welding Inspector
Sales and Service Industry

Curriculum Admission Guidelines: Proficiency in oral and written communication skills and general mathematics. Students with deficiencies will require developmental studies. The purchase of personal safety clothing is the financial responsibility of the individual student.

Welding Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	94	Practical Electricity I	2	2	3
WELD	120	Fundamentals of Welding	1	3	2
		Total	3	5	5
		Second Quarter			
ELEC	95	Practical Electricity II	2	2	3
WELD	121	Oxyacetylene Welding & Cutting	1	3	2
		Total	3	5	5
		Third Quarter			
ELEC	96	Practical Electricity III	2	2	3
WELD	122	Arc Welding I	1	3	2
		Total	3	5	5
		Fourth Quarter			
DRFT	171	Blueprint Reading I	1	3	2
ELEC	76	Electrical Power	3	0	3
WELD	123	Arc Welding II	1	3	2
		Total	5	6	7
		Fifth Quarter			
DRFT	172	Blueprint Reading II	1	3	2
WELD	124	Inert Gas Welding I	1	3	2
		Total	2	6	4
		Sixth Quarter			
SAFE	176	Principles of Industrial Safety	2	0	2
WELD	125	Inert Gas Welding II	1	3	2
WELD	136	Welding Metallurgy	3	0	3
		Total	6	3	7
ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY QUARTER:					
ECON	160	Survey of American Economics	3	0	3
ENGL		ELECTIVE	3	0	3
GOVT	180	American Constitutional Government	3	0	3
PSYC	128	Human Relations	3	0	3
		Total	12	0	12

Total Minimum Credits for Certificate 45

WELDING PRACTICE
(Career Studies)

Purpose: The curriculum is primarily designed to upgrade or initially train persons for full-time employment.

Occupational Objectives:
Arc, Gas, Mig and Tig Welding
Welding Supervisor
Welding Inspector
Sales and Service Industry

Curriculum Admission Guidelines: Proficiency in oral and written communication skills and general mathematics. Students with deficiencies will required developmental studies. The purchase of personal safety clothing is the financial responsibility of the individual student.

Welding Practice Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
ELEC	94	Practical Electricity I	2	2	3
WELD	120	Fundamentals of Welding	1	3	2
		Total	3	5	5
		Second Quarter			
WELD	121	Oxyacetylene Welding & Cutting	1	3	2
		Total	1	3	2
		Third Quarter			
WELD	122	Arc Welding I	1	3	2
WELD	136	Welding Metallurgy	3	0	3
		Total	4	3	5
		Fourth Quarter			
DRFT	171	Blueprint Reading I	1	3	2
WELD	123	Arc Welding II	1	3	2
		Total	2	6	4
		Fifth Quarter			
DRFT	172	Blueprint Reading II	1	3	2
WELD	124	Inert Gas Welding I	1	3	2
		Total	2	6	4
		Sixth Quarter			
SAFE	176	Principles of Industrial Safety	2	0	2
WELD	125	Inert Gas Welding II	1	3	2
		Total	3	3	4

Total Minimum Credits for Career Studies Certificate 24

WORD PROCESSING
(Career Studies)

Purpose: This curriculum is designed for people who wish to refine existing skills in order to re-enter the work force or prepare themselves for a new position in word processing.

Curriculum Admission Guidelines: Student must meet the general requirements for admission to the college and be able to type a minimum of 45 words per minute.

Word Processing Curriculum

Course Number		Course Title First Year Curriculum	Lecture Hours	Lab Hours	Course Credits
		First Quarter			
OFTC	144	Proofreading and Editing Skills	3	0	3
OFTC	160	Orientation to Information Processing	1	0	1
OFTC	200	Introduction to Office Automation	3	0	3
		Total	7	0	7
		Second Quarter			
BUAD	164	Principles of Business Management	3	0	3
OFTC	216	Word Processing Equipment Operation	2	3	3
		Total	5	3	6
		Third Quarter			
OFTC	136	Filing and Records Management	3	0	3
OFTC	217	Advanced Word Processing Equipment Operation	2	0	3
		Total	5	0	6
		Second Year Curriculum **Fourth Quarter**			
OFTC	241	Office Systems and Procedures I	2	2	3
OFTC	248	Business Letter Writing	3	0	3
		Total	5	2	6
		Fifth Quarter			
OFTC	207	Executive Typewriting	2	2	3
OFTC	242	Office Systems and Procedures II	2	2	3
		Total	4	4	6
		Sixth Quarter			
DAPR	106	Principles of Data Processing	3	0	3
OFTC	234	Machine Transcription I	2	2	3
		Total	5	2	6

Total Minimum Credits for Career Studies Certificate 37

Part IV

DESCRIPTIONS OF COURSES

CONTINUING EDUCATION AND COMMUNITY SERVICES PROGRAMS

In order to provide the widest possible diversification of educational opportunity, Virginia Western Community College schedules credit and noncredit courses and programs to meet educational and training needs outside the realm of traditional college studies. These include classes, institutes, forums, workshops, lectures, and courses to provide: (1) individual cultural enrichment; (2) individual job skill improvement; (3) hobby and leisure time activity training; (4) service to commerce and industry in upgrading employee skills; (5) special services focused on societal and community development.

State general fund tax dollars are not used to support noncredit community service programs.

GENERAL COURSE INFORMATION

Course Numbers

Courses numbered 01-09 are courses for Developmental Studies. The credits earned in these courses are not applicable toward associate degree programs; however, upon approval of the Dean, some developmental courses may provide credit applicable to basic occupational diploma or certificate programs. Students may reregister for these courses in subsequent quarters as necessary until the course objectives are completed.

Courses numbered 10-99 are basic occupational courses for diploma and certificate programs. The credits earned in these courses are applicable toward diploma and certificate programs but are not applicable toward an associate degree.

Courses numbered 100-199 are freshman courses applicable toward an associate degree, certificate or diploma.

Courses numbered 200-299 are sophomore courses applicable toward an associate degree, certificate or diploma.

Course Credits

The credit for each course is indicated after the title in the course description. One credit is equivalent to one collegiate quarter hour or two-thirds of a collegiate semester hour.

Course Hours

The number of lecture hours in class each week (including lecture, seminar and discussion hours) and/or the number of laboratrory hours in class each week (including laboratory, shop, supervised study, 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 "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, as listed in ther course description, each student also must spend some time on out-of-class assignments under his own direction. Usually each credit hour per course requires an average of three hours of in-class and out-of-class study each week.

Course Prerequisites

If any prerequisites are required before enrolling in a course, these prerequisites will be identified in the 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 in that sequence. When corequisites are required for a course, 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 Dean and instructional department.

ACCOUNTING

ACCT 14-15 BOOKKEEPING I-II (3 cr.) (3 cr.)—Astudy of the complete cycle of double-entry bookkeeping. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

ACCT 114-115 APPLIED ACCOUNTING I-II (3 cr.) (3 cr.)—Practical accounting as applied to retail stores, professional individuals in firms, and to personal service occupations; accounting forms and practical accounting procedures. Lecture 2 hours, Laboratory 2 hours. Total 4 hours per week.

ACCT 197—**See General Usage Courses**

ACCT 211-212-213 PRINCIPLES OF ACCOUNTING I-II-III (3 cr.)—Accounting principles and their application to various forms of business inventory valuation, internal control sytems, manufacturing processes, budgeting, and analysis of financial statements. Lecture 3 hours per week.

ACCT 227 MANAGERIAL ACCOUNTING (3 cr.)—Prerequisite ACCT 262. Preparation, analysis, and interpretation of accounting and financial data for managerial purposes. Lecture 3 hours per week.

ACCT 229 AUDITING (3 cr.)—Prerequisite 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. Lecture 3 hours per week.

ACCT 231-232-233 COST ACCOUNTING I-II-III (3 cr.) (3 cr. (3 cr.)—Prerequisite ACCT 211-212-213. Studies in accounting systems, methods and statements involved in process and job cost accounting; use of standards and cost controls. Lecture 3 hours per week.

ACCT 244 TAXES I (3 cr.)—Principles of federal taxation relating to individual income taxes with emphasis on minimization of personal tax burden and preparation of personal tax returns; single preparation form and tax problems. Lecture 3 hours per week.

ACCT 245 TAXES II (3 cr.)—Prerequisite ACCT 244. Federal taxation principles and theories concerning partnership and corporation income tax concepts and problems. Emphasis on evaluation of business transactions from a tax point of view, partnership and corporate tax minimization and tax return preparation. Lecture 3 hours per week.

ACCT 261-262-263 INTERMEDIATE ACCOUNTING I-II-III (3 cr.) (3 cr.) 3 cr.)—Prerequisite ACCT 211-212-213. Extensive analysis of the principle elements of accounting systems and statements. Lecture 3 hours per week.

ACCT 297—**See General Usage Courses**

ADMINISTRATION OF JUSTICE

ADJU 114-115 POLICE ORGANIZATION AND ADMINISTRATION I-II (3 cr.) (3 cr.)—Prerequisite ADJU 100. Police functioning at the administrative level. The organization and management of line operations, staff and auxiliary services, including investigative, juvenile, and vice units. The organization and management of personnel, internal control, planning and research, and housing and material functions. Lecture 3 hours per week.

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 disturbed persons. Lecture 3 hours per week.

ADJU 120 INTRODUCTION TO CORRECTIONS (3 CR.)—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. Lecture 3 hours per week.

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 as related to the juvenile problems. Lecture 3 hours per week.

ADJU 129 TREATMENT OF THE OFFENDER (3 cr.)—The theory, practice and problems in the fields of probation and parole as well as an institutional and community treatment of juvenile and adult offenders. Lecture 3 hours per week.

ADJU 130 INTRODUCTION TO CRIMINAL JUSTICE (3 cr.)—Describes the structure and dynamics of the United States Criminal Justice System, and the roles of workers in each major facet of the system. Includes discussion of historical basis and modern trends in law enforcement, corrections, and the judiciary. Lecture 3 hours per week.

ADJU 133 THE AMERICAN POLICE (3 cr.)—The function of the American police as the primary social mechanism for the protection of life and property. A focus on the contemporary police officer's use of discretion and decision making together with a study of police behavioral aspects, such as, attitudes, prejudice, deviancy, anomie, militancy and job stress. Lecture 3 hours per week.

ADJU 134-135 CRIMINAL LAW I-II (3 cr.) (3 cr.)—Major crimes; their classification, elements of proof, intent, conspiracy, responsibility, parties, and defenses. Emphasis on the common law and Virginia adaptations. Lecture 3 hours per week.

ADJU 136 LEGAL EVIDENCE (3 cr.)—Kinds, degrees, and admissibility of evidence; methods and techniques of its acquisition, use in criminal proceedings, moot court activities. Lecture 3 hours per week.

ADJU 137 LEGAL EVIDENCE I (3 cr.)—Trial procedure; kinds and rules of; witnesses; credibility and impeachment; and, the hearsay rule—its expectations; confessions and admissions. Lecture 3 hours per week.

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. Lecture 3 hours per week.

ADJU 144 CORRECTIONAL LAW I (3 cr.)—Prerequisite ADJU 120. A study of the consequences of convictions of criminal acts committed by adults and juveniles; the sentencing process; the various types of attack upon the validity of convictions. Lecture 3 hours per week.

ADJU 160 INTRODUCTION TO COURTS (3 cr.)—An overview of the judicial systems at federal and state levels with major emphasis on the judicial system in the Commonwealth of Virginia. The course includes an in-depth study of the courts of original and appellate jurisdiction and Grand Jury and administrative proceedings at the state level. Lecture 3 hours per week.

ADJU 168 CRIME AND JUSTICE IN AMERICA (3 cr.)—Examination of current trends and attitudes in crime and justice in modern America. Topics include revolving door justice, the changing role of women in policing, the power of judges, children and the law, and the pathology of imprisonment. Lecture 3 hours per week.

ADJU 171-172-173 FORENSIC SCIENCE I-II-III (4 cr.) (4 cr.) 4 cr.)—Fundamentals of forensic science. Fundamental characteristics of criminal laboratory analysis; fingerprinting, drug identification, crime scene detection, photography, blood, semen, neutron activation analysis. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ADJU 176 CRIMINOLOGY (3 cr.)—Volume and scope of crime, 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. Lecture 3 hours per week.

ADJU 218 NARCOTICS AND DANGEROUS DRUGS (3 cr.)—History and development of Narcotics and Dangerous Drug traffic in the United States; classification and identification; symptoms and effects; magnitude and cost; legislative controls; laboratory and field testing; investigative methods and procedures; and rehabilitation efforts. Lecture 3 hours per week.

ADJU 231-232 CRIMINAL LAW, EVIDENCE, AND PROCEDURES I-II (3 cr.) (3 cr.)—Major crimes; their classification, elements of proof, intent, conspiracy, responsibility, parties and defenses. Emphasis on the common law and Virginia adaptations. Kinds, degrees, and admissibility of evidence; methods and techniques of its aquisition, 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 from one year of Criminal Law. Lecture 3 hours per week.

ADJU 233 CRIMINAL LAW, EVIDENCE, AND PROCEDURES III (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. Intended to satisfy transfer requirements for one year of Criminal Law. Lecture 3 hours per week.

ADJU 240 CONSTITUTIONAL LAW FOR POLICE (3 cr.) — A survey of the background and application of Constitutional provisions, both State and Federal, pertinent to the functions of law enforcement officers. Includes such topical areas as speech; press, and assembly; arrest and detention; search and seizure; interrogations and confessions; self-incrimination and assistance of counsel; double jeopardy; speedy and fair trial; humane punishment; and civil rights. Lecture 3 hous per week.

ADJU 246 PRINCIPLES OF CRIMINAL INVESTIGATION (3 cr.)—Conduct at the crime scene; collection and handling of evidence; interviewing and interrogation; obtaining statements, admissions, and confessions, testifying in court, practical exercises. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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 application of same. Lecture 3 hours per week.

ADJU 290—**See General Usage Courses**

ADJU 298—**See General Usage Courses**

AGRICULTURE

AGRI 130 INTRODUCTION TO SOIL SCIENCES (3 cr.)—Biological, physical, edaphic, and social factors that influence crop production. Emphasis is placed on various phases of soil and plant sciences and how each area relates to both urban and rural populations. Lecture 3 hours per week.

AGRI 140 HOME VEGETABLE GARDENING (3 cr.)—Fundamentals of family vegetable garden planning and arrangement, seed selection, cultivation, soil management, and cultivation practices necessary for selected regional crops. Lecture 3 hours per week.

AGRI 236 AGRICULTURAL CHEMICALS (4 cr.)—A study of farm chemical pesticides, their ingredients, formulation, and farm application, with emphasis on the effective and safe use of chemicals in agricultural pest control. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

AGR 270 FARM TAXES AND RECORDS MANAGEMENT (3 cr.)—Principles of taxation relating to farm income taxes with emphasis on tax minimization, preparation of farm tax returns, and farm records. Lecture 3 hours per week.

AIR CONDITIONING AND REFRIGERATION

AIRC 11 AIR CONDITIONING I (3 cr.)—Designed to introduce and explain basic principles of refrigeration and systems. Deals with the composition and state of matter, liquid vapor, equilibrium, pressure, density, pressure-volume-temperature relationship. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AIRC 12 AIR CONDITIONING II (3 cr.)—The law of gases, temperature scales, heat work, power, energy, heat transfer and elementary refrigeration systems. Included is a thorough study of types of systems used in refrigeration. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AIRC 13 AIR CONDITIONING III (3 cr.)—The theory and application of compressors, condensors, evaporators, expansion valves and capillary tubes used in refrigeration systems. Freezing process of foods and refrigeration load calculators are included. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AIRC 14 AIR CONDITIONING IV (3 cr.)—Study of properties of air temperature, relative humidity, specific heat, condensation, evaporation, psychometrics, basic parts of systems, functions, problems, principles of operation, air-cooling, water cooling, load calculation, and estimating procedures. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AIRC 15-16 AIR CONDITIONING V-VI (3 cr.) 3 cr.)—Psychometric properties of air, heat, lead and gain calculation, heated and chilled water systems, duct design, pipe sizing, air distribution, and air comfort requirements. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

ARCHITECTURE

ARCH 100 INTRODUCTION TO ARCHITECTURE (3 cr.)—An intensive course outlining the history and impact of architecture. Emphasis on the dynamics and social aspects of architecture and society. Lecture 3 hours per week.

ARCH 111 ARCHITECTURAL DRAFTING I (3 cr.)—Designed to provide the fundamental knowledge of the principles of drafting. Skills and techniques of drafting including the use of drafting equipment, lettering, geometric construction, orthographic drawing, and pictorial drawing including perspective. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 112 ARCHITECTURAL DRAFTING II (3 cr.)—Prerequisite ARCH 111 or equivalent. Basic techniques of shade and shadow construction in orthographic drawings, development of construction details using appropriate material, indications, and symbols; study of model construction; drafting techniques with pen and ink. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 113 ARCHITECTURAL DRAFTING III (3 cr.)—Prerequisite ARCH 112. An in-depth study of architactural drafting. Development of techniques in architectural lettering, dimensioning, free-hand sketching and instrument drawing. Drawings of construction details using appropriate material symbols and conventions. Working drawings including plans, elevations, sections and details prepared from preliminary sketches. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 141 MATERIALS AND METHODS OF CONSTRUCTiON (3 cr.)—An introduction to the characteristics and use of various materials and components in the construction process with respect to residential and light commercial construction. Emphasis on materials and procedures for energy-efficient quality construction. Lecture 3 hours per week.

ARCH 142 MATERIALS AND METHODS OF CONSTRUCTION II (3 cr.)—Prerequisite ARCH 141. Designed to introduce the practical use of materials and methods of constructing concrete, steel, and timber structures. Lecture 3 hours per week.

ARCH 168-169 INTRODUCTION TO SOLAR ENERGY I-II (3 cr.) (3 cr.)—A survey of the principles involved in the planning and design of solar heated buildings. An overview of the development, application, and operation of active and passive systems. Topics include energy use and conservation, heat loss calculations, simplified procedures for sizing of systems and determining solar contribution, computer applications. Lecture 3 hours per week.

ARCH 197—**See General Usage Courses**

ARCH 211 ARCHITECTURAL DRAFTING IV (3 cr.)—Preparation of plans, elevations, wall sections, and details for building construction with emphasis on structural components. Appropriate details and drawings necessary for construction. Reference materials provide skills and knowledge in locating data and in using handbooks. Lecture 1 hours, Laboratory 6 hours, Total 7 hours per week.

ARCH 212 ARCHITECTURAL DRAFTING IV (3 cr.)—Prerequisite ARCH 211. Preparation of plans and details for building construction using appropriate symbols and conventions. Coordination of mechanical and electrical features with structural and architectural components. Lecture I hours, Laboratory 6 hours. Total 7 hours per week.

ARCH 213 ARCHITECTURAL DRAFTING VI (3 cr.)—Prerequisite ARCH 212. Preparation of a complete set of working drawings for the architectural structure including structural components. Lecture 1 hour, Laboratory 6 hours, Total 7 hours per week.

ARCH 276 CONSTRUCTION ESTIMATING (3 cr.)—Interpretation of working drawings for a project; preparation of material and labor quantity surveys for plans and specifications; approximate and detailed estimates of cost, and bid and contract procedures. Detailed inspection of the construction by comparing the finished work to the specifications. Lecture 3 hours per week.

ARCH 290, 298—**See General Usage Courses**

ARCH 297—**See General Usage Courses**

ARTS

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 beginning with prehistoric art and following the mainstream of western civilization to the present. Lecture 3 hours per week.

ARTS 121-122-123 THEORY AND PRACTICE OF DRAWING I-II-III (3 cr.) (3 cr.) (3 cr.)—Representational and nonrepresentational drawings in charcoal, wash, pencil, and varied combinations of media. Lecture 1 hours, Laboratory 4 hours, Total 5 hours per week.

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. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 166-167 FUNDAMENTALS OF LETTERING I—II (3 cr.) (3 cr.)—Calligraphy as an introduction to script and the constructed letter; creative, freehand, and mechanical lettering; other forms of letters used in today's graphic layout and design. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 197—**See General Usage Courses**

ARTS 227-228-229 DRAWING IV-V-VI (3 cr.) (3 cr.) (3 cr.)—Prerequisite ARTS 123 or divisional permission. Advanced study of concepts with emphasis on the drawing as a work of art, and on creative independence. Related gallery assignments. Laboratory 6 hours per week.

ARTS 231-232-233 THEORY AND PRACTICE OF PAINTING I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite ARTS 123. Abstract and representational painting in watercolor, oil, and tempera with emphasis on design, color, composition and value. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 261-262-263 ADVERTISING DESIGN I-II-III (3 cr.) (3 cr.) (3 cr.)—A study of the principles of visual communications as applied to advertising design in newspaper, magazine, direct mail advertising, house organs, etc. Analysis of the influence on layout by contemporary art. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

ARTS 266-267-268 ILLUSTRATION I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite ARTS 123 or divisional permission. Introductory course of materials and methods in the following fields: fashion, product, interior, furniture, editorial illustration, introduction to cartooning. Lecture I hour, Laboratory 4 hours, Total 5 hours per seek.

ARTS 271-272-273 GRAPHIC TECHNIQUES I-II-III (3 cr.) (3 cr.) (3 cr.)—The use of drawing instruments and materials; introduction to engraving processes; and the mechanics of reproduction for printing. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 274 INTRODUCTION TO ART PRINTMAKING (3 cr.)—A lecture workshop designed to introduce the student or print collector to printmaking from an historical and more contemporary modes of intaglio printing. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 275-276 ART PRINTMAKING WORKSHOP I-II (3 cr.) (3 cr.)—The full range of art printmaking; beginning with wood block and progressing to seriograph, photo silkscreen, intaglio, and lithography. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

ARTS 297—**See General Usage Courses**

ARTS 298—**See General Usage Courses**

AUTOMOTIVE

AUTO 106 AUTO MACHANICS FOR THE LAYMEN (2 cr.)—A brief study of the automobile with emphasis on operation and maintenance. Topics include tires, brakes, cooling, lubrication, ignition, fuel system, and suspension. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 121-122-123 AUTOMOTIVE FUEL SYSTEMS I-II-III (4 cr.) (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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 126 ANTI-POLLUTION SYSTEMS (4 cr.)—Prerequisite AUTO 133-193. A study of various anti-pollution systems used on modern automobiles, installation, insection, repair, and service. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 131-132-133 AUTOMOTIVE TECHNOLOGY I-II-III (6 cr) (6 cr.) (6 cr.)—A study of the operation, construction, repair and servicing of the major components of the automobile. Topics include laboratory and shop safety, use of tools and equipmenmt, overhaul techniques and maintenance procedures. Lecture 4 hours, Laboratory 6 hours, Total 10 hours per week.

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. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 138 AUTOMOTIVE VEHICLE INSPECTION (3 cr.)—The course is designed to provide information on how to perform automotive vehicle safety inspection. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 141-142 APPLIED MATHEMATICS FOR AUTOMOTIVE TECHNICIANS I-II (3 cr.) (3 cr.)—Includes a review of arithmetic skills, conversion of units, consumer mathematics, solution of linear algebraic expressions, and the solving of applied problems in torque, horsepower, piston displacement, etc. Lecture 3 hours per week.

AUTO 154-155 POWER TRAINS I-II (4 cr.) (4 cr.)—Analysis of transmission, propeller shaft, joints, differential, and rear axle identification of repairs and adjustments. Lecture 4 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 170 INTRODUCTION TO DIESEL ENGINE (3 cr.)—Prerequisite AUTO 133-193. A study of the modern automobile diesel engine including its construction, fuel system, lubrication, cooling, induction, exhaust systems, maintenance, minor adjustment and repair, and tuneup procedures. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AUTO 176 SMALL GASOLINE ENGINES (3 cr.)—A study of small gasoline engine operating principles, construction, design, variety and their many purposes. Instruction of the two-cycle and four-cycle small gas engines, their construction, design, fuel system, ignition system and lubrication systems. The disassembly, reconditioning, overhaul and reassembly is demonstrated in the lab. Thorough study and practice in trouble-shooting and tune-up. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 180 INTRODUCTION TO DIESEL-POWERED VEHICLES (2 cr.)—A survey of diesel-powered vehicles, their uses, characteristics, advantages, and complexity; and of the various systems that comprise the overall vehicle. The student will be able to recognize and identify all the major components of the vehicle and have an understanding of their purpose and interrelationship. Includes the fundamentals of routine preventive maintenance. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

AUTO 191-192-193 AUTOMOTIVE SYSTEMS I-II-III (4 cr.) (4 cr.) (4 cr.)—The fundamental systems of the automobile including the lubrication, cooling, fuel and basic ignition systems are covered with emphasis on theory of operation, inspection, adjustments, and repair procedures. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

AUTO 197—**See General Usage Courses**

AUTO 199—**See General Usage Courses**

AUTO 221-232-233 AUTOMOTIVE TECHNOLOGY IV-V-VI (6 cr.) (6 cr.) (6 cr.)—Prerequisites AUTO 131-132-133. An advanced study of the more complicated major components of the automobile. The use of the modern electronic and mechanical diagnostic procedures is used in the testing and evaluation of repair problems. Estimation of repair costs and performance checks are conducted. Lecture 4 hours, Laboratory 6 hours, Total 10 hours per week.

AUTO 236 AUTOMOTIVE HEATING AND AIR CONIDTIONING (3 cr.)—A study of separate and combined automotive heaters and air conditioners including direct and vacuum operated controls, basic principles of refrigeration, adjustments, general servicing, and charging of air condition systems. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AUTO 238 AUTOMOTIVE AIR CONDITIONING (3 cr.)—Principles of refrigeration, air conditioning controls, and the adjustment and general servicing of automotive air conditioning systems. Lecture 3 hours per week.

AUTO 246 AUTOMOTIVE ELECTRONICS (4 cr.)—Prerequisite AUTO 242. 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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 260 AUTOMOTIVE ACCESSORY SERVICE (3 cr.)—The operating principles, adjustment, and servicing of selected automotive accessories. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AUTO 265 AUTOMOTIVE BRAKING SYSTEMS (3 cr.)—Operating, design, construction, repair, and servicing of braking systems. Uses of tools and test equipment, evaluation of test results, estimation of repair cost for power, standard and disc brakes. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

AUTO 267 AUTOMOTIVE SUSPENSION AND BRAKING SYSTEMS (4 cr.)—Operation, design, construction, repair and servicing of braking and suspension systems; use of tools and test equipment, evaluation of test results, estimation and repair cost, front and rear suspension alignment, power and standard steering, and power, standard and disc brakes. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

AUTO 268 AUTOMOTIVE ALIGNMENT (2 cr.)—Use of alignment equipment in diagnosing, adjusting, and repairing suspension problems. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

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. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

AUTO 287-288 SHOP MANAGEMENT AND CUSOMER RELATIONS I-II (3 cr.) (3 cr.)—A study of shop layout, personnel management, cost analysis, record keeping and quality control. The shop manager, service salesman, and service writer's role in customer relations. Lecture 3 hours per week.

AUTO 290—**See General Usage Courses**

AUTO 291-292-293 AUTOMOTIVE SYSTEMS IV-V-VI (4 cr.) (4 cr.) (4 cr.)—Prerequisites AUTO 191-192-193. An advanced study of the systems of the automobile. Topics include the brake stystem, engine and chassis electrical systems, and other systems with emphasis on theory of operation and practice in trouble-shooting. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per

AUTO 298—**See General Usage Courses**

BIOLOGY

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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 104-105 GENERAL BIOLOGY I-II (6 cr.) (6 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. Lecture 4 hours, Laboratory 6 hours, Total 10 hours per week.

BIOL 154-155 HUMAN ANATOMY AND PHYSIOLOGY I-II—See NASC 111-112.

BIOL 176 MICROBIOLOGY—See NASC 113.

BIOL 198, 199—**See General Usage Courses**

BIOL 214 INTRODUCTION TO NONVASCULAR PLANTS (4 cr.)—Prerequisites BIOL 101 or equivalent (not open to students having had BIOL 114-115). Designed to cover the lower plants including the algae, fungi, and bryophytes. Studies of major taxonomic groups-their morphology, life cycles, ecology, and physiology, economic importance. Sight recognition and collections may be required. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 215 INTRODUCTION TO VASCULAR PLANTS (4 cr.)—Prerequisites BIOL 101 or equivalent (not open to students having had BIOL 114-115). Designed to cover the higher plants beginning with those that have vascular tissue, and including flowering and nonflowering plants. Studies of major taxonomic groups-their morphology, life cycles, ecology, phsiology, economic importance. Sight recognition and collection may be included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 216 PLANT LIFE IN VIRGINIA (3 cr.)—The field identification and ecological relationships of the native plants of Virginia: the identification of shrubs, vines, weeds, wildlife flowers, ferns and mushrooms. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

BIOL 220 INTRODUCTORY VERTEBRATE ZOOLOGY (4 cr.)—Prerequisite BIOL 101 or equivalent (not open to students having had BIOL 124-125). Fundamentals of vertebrate anatomy, physiology, embryology, classification and evolution. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 226 INTRODUCTORY INVERTEBRATE ZOOLOGY (4 cr.)—Prerequisite BIOL 101 or the equivalent (not open to students having had BIOL 124-125). The biology of invertebrate animals with special reference to structure, embryology, function, ecology, classification, and evolution. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 254 GENERAL GENETICS I (3 cr.)—Prerequisite BIOL 103. An introductory course in the science of genetics ranging from classical Mendelian inheritance to the most recent advances in the biochemical nature and function of the gene. Also included will be student experience in experimental design and statistical analysis of data. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

BIOL 269 GENERAL MICROBIOLOGY (4 cr.)—Prerequisite BIOL 103 or equivalent. An examination of the ecological position of microorganism in our world, together with their basic structure and function. The relationship existing between microbes and man will be considered. Disease causing mechanisms of various organisms as well as methods employed to control microorganisms will be studied. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BIOL 276 REGIONAL FLORA (3 cr.)—Family characteristics of vascular plants including principal phylogeny and classifications based principally on local flora. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

BIOL 298,299—**See General Usage Courses**

BROADCASTING

BCST 110 INTRODUCTION TO RADIO/TV (3 cr.)—An historical overview of broadcasting; pioneer radio to television. The forces that have shaped broadcasting and its influence on society. Lecture 3 hours per week.

BCST 111-112-113 INTRODUCTION TO RADIO/TV I-II-III (4 cr.) (4 cr.) (4 cr.)—An introduction to the field of radio and televison communications including a historical overview of the field. Introduction to the organization and principles of radio and television production and operation from commerical and noncommercial point of view. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

BCST 134-135 SPEECH FOR RADIO/TV I-II (3 cr.) (3 cr.)—Prerequisites BCST III and SPDR 141 or equivalent. Broadcast announcing including technical problems, techniques and modes of articulatory expression in varied broadcast situations. Lecture 2 hours, Laboratory 3 hours, Total 5 hours, per week.

BCST 138-0139 TV STUDIO ART I-II (3 cr.) (3 cr.)—Corequisite BCST III. Designed for the prospective producer - director; the design and use of graphics, scenery and props, the use of color, special effects and animation. Lecture 3 hours per week.

BCST 197—**See General Usage Courses**

BCST 214-215 TECHNICAL PROBLEMS OF RADIO/TV I-II (3 cr.) (3 cr.)—Prerequisite BCST 113 or equivalent. A study of radio and television technical problems. Equipment operating characteristics including transmission, the audio board, camera, audio and video tape recording, editing and splicing; special purpose equipment such as reverb units and special effects; sound control, effect of color intensity, chroma and hue, FCC license requirements. Lecture 3 hours per week.

BCST 216 RADIO/TV STATION MANAGEMENT AND OPERATION (3 cr.)—Prerequisite BCST 113 or equivalent. Broadcast management responsibility; simulated decision making; the roles of government, public interest and programming in radio and television management and operation. Lecture 3 hours per week.

BCST 217 RADIO/TV NEWS (3 cr.)—Prerequisite BCST 226. The prinicples and techniques of news organization; to provide experience in writing, editing and reporting news; and to develop an understanding of broadcast ethics and responsible news in a free society. Lecture 3 hours per week.

BCST 226 WRITING FOR RADIO/TV (3 cr.)—Prerequisite BCST 113 or equivalent. The written communication process; writing and planning of continuity for radio and television; documentary writing. Lecture 3 hours per week.

BCST 236 BROADCAST ADVERTISING & SALES (3 cr.)—Prerequisite BCST 113 and BCST 226 or equivalent. The role of advertising in broadcasting today. Emphasis on the structure of sales departments, rating systems, rate cards and the purpose of time brokers on network levels. Concentration also on the structure of advertising agencies and their relationship with broadcast installations. Lecture 3 hours per week.

BCST 257 SOCIAL PROBLEMS IN AMERICAN BROADCASTING (3 cr.)—Prerequisite BCST 216 or equivalent. The dominant issues in contemporary broadcasting including the role of pressure groups, violence and the mass media, the influence of advertising, censorship, and broadcasting's enormous potential. Lecture 3 hours per week.

BCST 281-282-283 ADVANCED RADIO/TV PRODUCTION I-II-III (5 cr.) (5 cr.) (5 cr.)—Prerequisite BCST 113. Advanced radio and television program production and direction: production environment and organization; producer-director responsibilities and techniques; practical exercises in student production and direction. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

BCST 290, 297, 298, 299—**See General Usage Courses**

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. Lecture 3 hours per week.

BUAD 108 BUSINESS MACHINES (2 cr.)—A course to develop proficiency in the use of office machines such as calculator, Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

BUAD 115 PRINCIPLES OF SUPERVISION II (3 cr.)—Prerequisite BUAD 114. Types of supervisory functions including job management, work improvement, training and orientation of employees, evaluation of employee performance, communication, and the handling of various relationships among and between employees and management. Lecture 3 hours per week.

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. Lecture 3 hours per week.

BUAD 118 REAL ESTATE LAW — SAVINGS AND LOAN (3 cr.)—This course is designed to familiarize those working in Savings and Loan Associations with the legal aspects involved in real estate transactions. Involved is a study of the history of real estate law, terminology, mortgages, land development, zoning and building ordinances, taxes, and landlord-tenant relationships. Lecture 3 hours per week.

BUAD 119 REAL ESTATE LAW II — SAVINGS AND LOAN (3 cr.)—Prerequisite BUAD 118. Designed to familiarize those working in Savings and Loan Associations with legal aspects involved in real estate transactions. History of real estate law, terminology, mortgages, land development, zoning and building ordinances, taxes, and landlord-tenant relationships. Lecture 3 hours per week.

BUAD 121-122-123 BUSINESS MATHEMATICS I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite MATH 02 or proficiency in Algebra I. 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. The theories of mathematics are applied to business activities emphasizing the use of concepts and procedures concerning payroll computations, rations, discounts, interest, sales and property tax, pricing mark-up and mark-down, and annuities. Lecture 3 hours per week.

BUAD 130 INTRODUCTION TO CREDIT UNIONS (4 cr.)—Systematic introduction to Credit Union Movement: history, characteristics, powers, operation, services and nature of credit unions. Role and function of credit union management as well as the developing nature of these programs will be covered. Lecture 4 hours per week.

BUAD 134 PRINCIPLES OF CREDIT UNION OPERATIONS I (4 cr.)—Prerequisite BUAD 130. Deals with functions of teller transactions, loan granting, financial counseling, collections. Collections sytems, delinquency control, current regulations and policies will be covered. Lecture 4 hours per week.

BUAD 136 CREDIT AND COLLECTIONS PRINCIPLES (3 cr.)—Functions of credit in business and commerce, credit documents and instruments, classification of credit in terms of importance to business and individuals, retail credit, its position and importance in our economy, commercial credit, its use and functions, considerations in evaluating risk factors and in making credit decisions, sources of credit information, special agencies as sources of information, organization, and functions of credit interchange bureaus, the financial statement as a source of information, organization and functions of the credit department and credit department personnel. Lecture 3 hours per week.

BUAD 140 INTRODUCTION TO SAVINGS ASSOCIATION BUSINESS (3 cr.)—Examines the origins, nature and development of the savings association business; describes the legal environment for financial intermediaries; analyzes major competitive factors and institutions in the field of finance and investments; explains the organization, charting and function of modern savings associations; and identifies current problems and trends in today's business world. Lecture 3 hours per week.

BUAD 148 SAVINGS ASSOCIATION OPERATIONS (3 cr.)—Prerequisite BUAD 140. Identifies major operating areas of a savings association; the principle functions of each area; and standard terms related to each area's major functions and responsibilities in relationship to the effect of government regulations and other external constraints. Typical work assignments and operating functions are covered along with their interrelationship. Lecture 3 hours per week.

BUAD 149 SAVINGS ACCOUNTS (3 cr.)—Prerequisite BUAD 140. Examines the importance of savings in the American economy; features of savings accounts and other investment forms; defines the contractual nature of savings accounts; analyzes various categories of savings account ownership to assist customers in understanding aspects of ownership; and identifies how savings accounts and classified. Lecture 3 hours per week.

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. Lecture 3 hours per week.

BUAD 164 PRINCIPLES OF BUSINESS MANAGEMENT I (3 cr.)—Management and management functions; planning, organizaing, staffing, directing, and controlling. Management examined as both a science and art with emphasis on both the body of knowledge and the personal abilities required to be successful as a manager. Lecture 3 hours per week.

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. Lecture 3 hours per week.

BUAD 166 MANAGEMENT PRINCIPLES SEMINAR (3 cr.)—Topics include management of personal time, contributions of the individual manager, management planning, effective decisions, and staffing for strength. Also included will be problem cases for practical applications. Lecture 3 hours per week.

BUAD 174-175 SMALL BUSINESS MANAGEMENT I-II (3 cr.) (3 cr.)—A study of management problems which 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 relationships, case studies involving actual business situations. Lecture 3 hours per week.

BUAD 176 ADMINISTRATIVE OFFICE MANAGEMENT (3 cr.)—Prerequisite BUAD 164. Principles of office management. The study of office organization and layout; work flow, office procedures, standards, personnel and supervision, equipment, centralized services; and current office management trends. Lecture 3 hours per week.

BUAD 177 PRINCIPLES OF SCHOOL ORGANIZATION AND MANAGEMENT (3 cr.)—Basic office management skills and systems designed to teach the educational secretary how to function more effectively as an office assistant. Emphasis is on decision making and priority setting within an educational frame of reference. Directs the individual toward job enrichment and challenge by developing initiative and confidence. Lecture 3 hours per week.

BUAD 184 PRINCIPLES OF BUSINESS MANAGEMENT I (4 cr.)—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 required to be successful as a manager. Lecture 4 hours per week. This course is an extended version of BUAD 164 for application to American Institute of Banking educational programs.

BUAD 197—**See General Usage Courses**

BUAD 236 SAVINGS AND TIME DEPOSIT BANKING (3 cr.)—Traces the historic development of savings institutions and an understanding of the basic economic functions of the savings process. Review of the economics of the savings process in order to clarify important differences between financial savings by individuals or organizations and real savings that appear as capital formation. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment. Lecture 3 hours per week.

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 agency. Lecture 3 hours per week.

BUAD 242 BUSINESS LAW I (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. Lecture 3 hours per week.

BUAD 243 BUSINESS LAW III (3 cr.)—Prerequisite BUAD 241-242. Continuation of BUSINESS LAW I & II (BUAD 241-242). Employment, bailment, partnership, corporations, property, and the Uniform Commercial Code. Lecture 3 hours per week.

BUAD 246 BUSINESS FINANCE (3 cr.)—Prerequisite ACCT 211-212-213. Problems involved in the acquisition and use of funds necessary to the conduct of business. Sources and instruments of capital and finance, financial organizations, and financing of operations and adjustment. Lecture 3 hours per week.

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. Lecture 3 hours per week.

BUAD 251-252-253 BUSINESS STATISTICS I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite Math 162 or Math 183 or departmental approval. Introduction to the fundamental ideas of statistics, including a brief treatment of elementary probability, descriptive statistics, distributions, problems of sampling, normal distributions, measure of central tendency, sampling variance, confidence intervals, estimation, testing of hypotheses, regression correlation, and analyses of variances. Lecture 3 hours per week.

BUAD 254-255 APPLIED BUSINESS STATISTICS I-II (3 cr.) (3 cr.)—Prerequisite BUAD 122 or Departmental Approval. An introduction to statistical methods and their application in a business environment. Topics included are descriptive statistics, basic concepts of probability, sampling techniques, statistical reference, regression and correlation, time series, and decision theory. Lecture 3 hours per week.

BUAD 256 TRUST FUNCTIONS AND SERVICES (3 cr.)—The services rendered by institutions engages 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. Lecture 3 hours per week.

BUAD 257 HOME MORTGAGE LENDING (3 cr.)—A picture of the mortgage market is presented; the acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and the obligations of the mortgage loan officer in overall portfolio management. Lecture 3 hours per week.

BUAD 258 INSTALLMENT CREDIT (3 cr.)—The techniques of installment lending including establishment of credit, obtaining and checking information, servicing the loan, and collecting amounts due. Lecture 3 hours per week.

BUAD 259 CREDIT ADMINISTRATION (3 cr.)—Statement and a discussion of factors influencing and determining loan policy. Methods of credit investigation and analysis, credit techniques, specific credit problems. and regular as well as unusual types of loans. Lecture 3 hours per week.

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 Run Financing. Both theoretical and applied techniques will be studied from the viewpoint of the supplier and user of funds. Lecture 3 hours per week.

BUAD 268 BANK MANAGEMENT (3 cr)—Presents new trends which have emerged in the philosophy and practice of management. Study and applications of the principles provide new and experienced bankers with a working knowledge of bank management. Utilizes the case method of solving management problems. Lecture 3 hours per week.

BUAD 276 PERSONNEL MANAGEMENT (3 cr.)—The problems and issues in the administration of personnel action. Includes organization and tasks of personnel development, significant personnel considerations and an appraisal of the position of labor in business today. Lecture 3 hours per week.

BUAD 287 PUBLIC RELATIONS IN MANAGEMENT (3 cr.)—A survey of public relations as a management responsibility. Includes philosophy and techniques of public relations; application to employee, public customer, and stockholder relations; lecture, demonstrations, and problem cases for practical application. Lecture 3 hours per week.

BUAD 288 COMMUNICATIONS IN MANAGEMENT (3 cr.)—Functions of communication in management. Methods of communicating purposefully with emphasis on gathering, organizing and transmitting facts and ideas. Review of basic techniques of effective oral and written communications. Lecture 3 hours per week.

BUAD 289 PRACTICES AND PHILOSOPHIES OF MANAGEMENT (3 cr.)—Provides an opportunity to develop an understanding of appropriate attitudes related to human situations so that the individual may become a more useful and responsible member of an organization and prepare for positions of greater administrative responisbility. Analysis and discussion of cases to develop the ability to think and act responsibly. Consideration of principles; philosophies and ethical values to broaden the scope and growth of the administrator. Management development deals with men, motivation, and morale designed for managers, foremen, supervisors, and department heads. Lecture 3 hours per week.

BUAD 297—**See General Usage Courses**

BUAD 298,299—**See General Usage Courses**

CHEMISTRY

CHEM 05 DEVELOPMENTAL CHEMISTRY FOR HEALTH SCIENCES (4 cr.)—Prerequisite: Proficiency in Algebra I or Math 06. A developmental course introducing the basic principles of inorganic and organic chemistry with emphasis on application in the health sciences. CHEM 05 can be used at VWCC as a replacement for a high school chemistry prerequisite. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 100 INTRODUCTION TO CHEMISTRY (4 cr.)—An introductory survey of chemistry for students not intending to specialize in chemistry. Lectures will emphasize basic principles of inorganic chemistry; Laboratory will be illustrative of the principles considered. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

CHEM 101,102-103 GENERAL CHEMISTRY I-II-III (4 cr.) (4 cr.) 4 cr.)—Prerequisite: Algebra II or MATH 07 is required, and high school chemistry or CHEM 05 is recommended but not required. This is a beginning sequence 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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 106 SURVEY OF ANALYTICAL CHEMISTRY (4 cr.)—Prerequisite Chem 100 or Chem 111 or equivalent. A survey of analytical chemistry for students not intending to specialize in chemistry. Theory and practice in standard methods of gravimetric and volumetric analysis. Emphasis on equilibrium in acid-base and oxidation-reduction equations and application of theoretical principles of qualtitative analytical procedures. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

CHEM 107 SURVEY OF ORGANIC CHEMISTRY (4 cr.)—Prerequisite Chem 100 or Chem 111 or equivalent. A short course in fundamentals of organic chemistry for students not intending to specialize in chemistry. Nomenclature, isomerism, and physical and chemical properties of organic compounds are emphasized. Structural interpretation using spectroscopic methods are discussed. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

CHEM 111-112-113 GENERAL INORGANIC CHEMISTRY I-II-III (4 cr.) (4 cr.) (4 cr.)—Prerequisite: Algebra II or MATH07. This is the beginning sequence for science and engineering majors. The sequence covers the fundamental theories and laws of chemistry. The laboratory emphasizes the quanitative aspects of the course content. The student is expected to have a strong background in mathematics, and a background in high school chemistry is recommeded but not required. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 114-115 GENERAL INORGANIC CHEMISTRY I-II (6 cr.) (6 cr.)—Two quarter sequence covering CHEM 111-112-113. Lecture 4 hours, Laboratory 5 hours, Total 9 hours per week.

CHEM 197—**See General Usage Courses**

CHEM 198,199—**See General Usage Courses**

CHEM 241,242,243 ORGANIC CHEMISTRY I-II-III (4 cr. (4 cr.) (4 cr.)—Prerequisite CHEM 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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CHEM 297—**See General Usage Courses**

CHEM 298, 299—**See General Usage Courses**

CIVIL ENGINEERING TECHNOLOGY

CIVL 100 INTRODUCTION TO SURVEYING (3 cr.)—Prerequisite MATH 118 or equivalent. Introduction to surveying equipment and instruments; distance and angle measurements with mathematical principles applied; maintenance and adjustments of surveying equipment. Basic surveying operations including: curves, earthwork, and traverse computations, city and route surveying, spiral, vertical and transition curves, highway safety and design. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

CIVL 140 CONSTRUCTION PLANNING (3 cr.)—Introduction to civil engineering construction and the principles and economics of construction planning. Lecture 3 hours per week.

CIVL 181-182 SURVEYING I-II (4 cr.) (4 cr.)—Prerequisite CIVL 100 or equivalent. Introduction to surveying, chaining and pacing, direct and profile leveling, measurements of angles, transitape traversing, traverse analysis, calculation of areas, adjustment of instruments. Basic and complex circular curves, stadia surveying, topographic surveying and analysis and preparation of topographic maps. Field work parallels classroom instruction. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

CIVL 197—**See General Usage Courses**

CIVL 217 STRUCTURAL STEEL DESIGN (4 cr.)—Prerequisite ENGR 152 or equivalent. Design, investigation, and detailing of basic structural steel members of steel frame structures. Lecture 4 hours per week.

CIVL 218 REINFORCED CONCRETE DESIGN (4 cr.)—Prerequisite ENGR 252 or equivalent. Design, investigation and detailing of reinforced concrete structural members used in the construction of concrete framed structures. Lecture 4 hours per week.

CIVL 230 STRUCTURAL ANALYSIS (3 cr.)—Prerequisite ENGR 252 or equivalent. Analysis of statically determinate and indeterminate structures based on both the principles of statics and geometric conditions. Lecture 3 hours per week.

CIVL 246 SOIL MECHANICS (3 cr.)—Soil and 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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

CIVL 254 CIVIL MATERIALS I (CONCRETE) (3 cr.)—Properties of portland cement concrete, methods of mix design, use and placement of concrete. Lecture 3 hours per week.

CIVL 257 CONCRETE LABORATORY (1 cr.)—Corequisite CIVL 254. Mixing, curing, testing and quality control of concrete. Lecture 3 hours per week.

CIVL 290, 297, 298—**See General Usage Courses.**

COMPUTER SCIENCE

CSCI 201 PRINCIPLES OF COMPUTER SCIENCE I (4 cr.)—Corequisite Math 141 or division approval. An introductory course in problem solving methods in algorithmic development. The course will emphasize the use of good programming style and designing coding, debugging and documentaing programs. FORTRAN or another appropriate high level programming language will be used. Lecture 4 hours per week.

CSCI 202 PRINCIPLES OF COMPUTER SCIENCE II (4 cr.)—Prerequisites CSCI 201 and Math 141. Structured programming and data structures. Continuing concepts of good programming style from CSCI I. Introduces second high level programming language such as PASCAL or other appropriate language. Emphasizes structured programming concepts, algorithmic analysis, data structures and student development of programs. Lecture 4 hours per week.

CSCI 203 PRINCIPLES OF COMPUTER SCIENCE III (4 cr.)—Prerequisite CSCI 202. Data structures course which continues the concepts of good programming style and algorithmic analysis from CSCI II. Emphasizes basic aspects of processing computer data such as string processing, searching, sorting, linear and linked allocation and recursion. Extensive emphasis on student development of large programs. Lecture 4 hours per week.

DATA PROCESSING

*DAPR 105 COMPUTER CONCEPTS WITH APPLICATIONS (3 cr.)—Covers the terminology and concepts of the processing of data by use of an electronic computer. Provides specific training on the use of microcomputers, with particular attention to curriculum related applications. Not intended for Computer Science or Data Processing majors. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

DAPR 106 PRINCIPLES OF DATA PROCESSING (3 cr.)—Prerequisite one year of high school algebra. An introduction to methods, techinques, and systems of manual, mechanical, and electronic data processing. History and development of punch card data processing, and electronic or automatic data processing. Lecture 3 hours per week.

DAPR 120 COMPUTERS AND OTHER 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. Lecture 1 hour per week.

DAPR 121-122-123 STRUCTURED COBOL PROGRAMMING I-II-III (3 cr.) (3 cr.) (3 cr.)—Designed for students with no previous knowledge of computers and/or COBOL,who wish to learn COBOL programming. Incorporates the learning of COBOL with the methods and styles of "Structured" and "Modular" programming. Provides actual experience in the use of basic programming structures, COBOL logic, the basic COBOL language subset auxiliary storage, and the program development process. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DAPR 137 COMPUTER OPERATIONS MANAGEMENT (3 cr.)—Prerequisite DAPR 106 or equivalent. Computer systems operations management. Emphasis on flow of data, control points, system flow charts, procedure write-ups, and scheduling personnel workloads. Lecture 3 hours per week.

DAPR 139 FLOWCHARTING AND COMPUTER PROGRAMMING LOGIC (3 cr.)—Instruction in the basic logic and flowcharting of business application programs. Topics include basic input/output, crossfooting and final totals, comparing, control codes in input records, report headings, subroutines and programmed switches, control breaks, sequential file updating, table searches, and internal sorting. Lecture 3 hours per week.

DAPR 149 COMPUTER PROGRAMMING (PASCAL) (4 cr.)—Designed for students who want to learn to program using a simple, high-level structured programming language, that is being used on large computers as well as on microcomputers. Emphasis is not only on the syntax of PASCAL but also on programming techniques that are applicable to other languages, such as COBOL, FORTRAN, and PL/1. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

*DAPR 151 BASIC FOR MICROCOMPUTERS I (3 cr.)—Designed for students with no previous knowledge in microcomputers or programming. Incorporates instruction in the BASIC language and simple program logic. Will include but not be limited to instruction for selection, iteration, input and output. Students will write simple function programs and learn the microcomputer commands necessary for the development, execution and storage of program. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

*DAPR 152 BASIC FOR MICROCOMPUTERS II (3 cr.)—Prerequisite DAPR 151 or equivalent. A continuation of DAPR 151. Further development of programming using the BASIC language to include establishment and maintenance of sequential files and direct access files for numeric and non-numeric variables. Students will write comprehensive programs that include subroutines, formatting, and error detection and correction. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

DAPR 197, 198—**See General Usage Courses**

DAPR 236 DATA PROCESSING MANAGEMENT (3 cr.)—Prerequisite DAPR 106 or equivalent. Survey of ADP management, covering staff and operating functions; ADP planning, analysis of requirements, system selection, contractual considerations, lease/purchase studies, costing of tangible and intangible benefits. Lecture 3 hours per week.

DAPR 258 COMPUTER PROGRAMMING: BASIC (3 cr.)—Prerequisite DAPR 106 or equivalent and instructor's permission. The study and development of programming capabilities in Beginners' All Purpose Symbolic Instruction Code (BASIC); including program logic, file manipulations, file development, solving of business oriented problems. The BASIC language used in an interactive mode of communication with a computer. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DAPR 267 COMPUTER PROGRAMMING (RPG) (4 cr.)—Prerequisite DAPR 139 or equivalent. The study and development of programming capabilities in the business computer language Report Program Generator (RPG). Includes program logic, block diagramming, coding techniques, documentation, advantages, and disadvantages of RPG as a high-level language in small and medium scale installations. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 269 COMPUTER PROGRAMMING (ASSEMBLER) (4 cr.)—Prerequisite DAPR 139 or equivalent. 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 languaage in a total programming system. The principles of debugging and core-dump reading will be given major emphasis. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 281 STSTEMS ANALYSIS I (3 cr.)—Prerequisite DAPR 123 and 137. A study of the overall computer-based systems analysis and design process; information problems of business organization and the interrelationships of functions; nature of business problem isolation and definition; initial phase of systems and evaluation. Lecture 3 hours per week.

DAPR 282 SYSTEMS ANALYSIS II (3 cr.)—Prerequisite DAPR 281 and I37. The systems design and implementation phases relating to initial automation; upgrading or revision of business data processing systems; system documentation including summaries for management schedules and cost analysis; equipment selection, acquisition and detailed review of pre- and post-installation considerations. Lecture 3 hours per week.

DAPR 286 COMPUTER PROGRAM APPLICATIONS (4 cr.)—Prerequisite DAPR 123 and DAPR 282. The characteristics and requirements of basic business applications. Design of a computer solution to an application as a case study. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

DAPR 287 COMPUTER SOFTWARE SYSTEMS (3 cr.)—Prerequisite DAPR I39 or equivalent. A study of components, functions, and relationships of computer operating systems and their interactions with user programs. Lecture 3 hours per week.

DAPR 297, 298, 299—**See General Usage Courses**

DENTAL

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 jurisprudence; professional and educational opportunities. Lecture 3 hours per week.

DENT117 DENTAL MATERIALS (3 cr.)—A study of the physical and chemical properties of the materials used in dentistry. Laboratory experiences emphasizing proper manipulation of materials. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DENT 118 DENTAL LABORATORY PROCEDURES (1 cr.)—A continuation of DENT 117. The laboratory exercises are designed to illustrate the properties and uses of materials presented in DENT 117. Emphasis on laboratory procedures delegated to a dental assistant. Lecture 0 hours, Laboratory 3 hours, Total 3 hours per week.

DENT 121-122 CHAIRSIDE ASSISTING I-II (4 cr.) (4 cr.)—Prerequisites: DENT 100, 110, 101-102 or corequisite. The proper procerdures of reception and preparation of the patient; care of 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, and expanded duties limited to dental assistants. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

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. Lecture 1 hour, Laboratory 15 hours, Total 16 hours per week.

DENT 124 CHAIRSIDE ASSISTING IV (5 cr.)—A continuation of 123 with a practicum course designed to involve the student in clinical procedures and chairside assisting. Laboratory 15 hours per week.

DENT 128 HEAD AND NECK ANATOMY (2 cr.)—A detailed study of the anatomy and physiology of the structures of the head and neck. Lecture 2 hours per week.

*DENT 129 GENERAL AND ORAL HISTOLOGY (2 cr.)—Microscopic anatomy and physiology of oral tissues with emphasis on enbryologic development of head and neck, teeth, and histologic components of the periodontum. Lecture 2 hours, Total 2 hours per week.

DENT 136 PHARMACOLOGY (2 cr.)—The chemical therapeutic agents used in dentistry, including their preparation, effectiveness, and specific applications. Lecture 2 hours per week.

DENT 139 DENTAL ASSISTING (2 cr.)—Dental Hygiene students will receive instruction in phases of chairside assisting as members of the dental health team. Lecture 3 hours, Total 3 hours per week.

*DENT 140 INTRODUCTION TO DENTAL HYGIENE (4 cr.)—Introduction to the dental hygiene profession and to patient treatment skills through lecture and supervised pre-clinical laboratory practice. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

DENT 144 DENTAL HYGIENE I (5 cr.)—The introduction of clinical knowledge and skills for the performance of dental hygiene services, and medical and dental emergencies, basic skills components, lab manikins and patient practice. Lecture 3 hours, Laboratory 6 hours, Total 9 hours per week.

DENT 146 ORAL RAIOGRAGRAPHIC 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. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DENT 147 NUTRITION (3 cr.)—Study of nutrition as it relates to dentistry and general health. The principles of nutrition as applied to the clinical practice of dental hygiene. Lecture 3 hours per week.

DENT 148 OFFICE PRACTICE AND ETHICS (2 cr.)—The principles of dental ethics and economics as they relate to the dental hygienist. The course will also include a study of jurisprudence and office procedures. Lecture 2 hours per week.

DENT 149 DENTAL OFFICE MANAGEMENT PROCEDURES (3 cr.)—Prerequisites are DENT 108 and DENT 121. Instruction and practice in the management of a dental office in areas such as appointment and recall systems, reception techniques, financial records and accounting procedures, insurance claims, purchase and inventory of supplies and equipment, filing system. Emphasis is on the role of a dental assistant as office manager. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

DENT 150 GENERAL AND ORAL PATHOLOGY (3 cr.)—Introduction to general pathology with consideration of the common diseases affecting the human body. Particular emphasis is given to the study of pathological conditions of the mouth, teeth and their supporting structures. Lecture 3 hours per week.

DENT 154-155 PERIODONTICS FOR DENTAL HYGIENE I-II (2 cr.)—Introduction of periodontics to the dental hygienist — anatomy and physiology, periodontal pathology and clinical determination of cases. Techniques in prevention and management of periodontics and special patient problems. Lecture 2 hours per week.

DENT 156 ORAL RADIOGRAPHIC PRACTICUM (1 cr.)—Practicum will include five weeks using dexter manikin, remaining time spent taking x-rays of clinical patients through the performance of full mouth radiographic surveys. Laboratory 3 hours, Total 3 hours per week.

DENT 158 DENTAL HYGIENE II (4 cr.)—Prerequisite DENT 144. Supervised clinical practice in the dental hygiene clinic with emphasis on developing patient treatment and instrumentation skills. Clinical seminar to include instrument sharpening, time management, and patient education techniques and methods. Lecture 1 hour, Laboratory 9 hours, Total 10 hours per week.

DENT 159 NUTRITION FOR DENTAL ASSISTANTS (2 cr.)—A study of the significance of foods and their relationship to dental health. Techniques in counseling patients in food selection will be correlated with clinical activity. Lecture 2 hours, Total 2 hours per week.

DENT 162 DENTAL CARE SCIENCE II (3 cr.)—Prerequisite DENT 167. Basic microbiology, pathology, and pathological conditions as related to the role of the Dental Assistant. Lecture 3 hours per week.

DENT 163 DENTAL CARE SCIENCE III (3 cr.)—Prerequisite: DENT 162. Pharmacology as related to dentistry and the principles involved in dental health education programs. Lecture 3 hours per week.

DENT 167 ORAL ANATOMY (3 cr.)—A detailed study of morphology and function of the oral structures with emphasis on the primary and permanent dentition, eruption sequence, occlusion, and intra-arch relationships. Lecture 3 hours, Total 3 hours per week.

DENT 174 COMMUNITY HEALTH I (2 cr.)—An introduction to public/community health concepts and problems, epidemiology and statistics as applied to dental public health. Introduction to health planning and program implementation. Lecture 2 hours, Laboratory 0 hours, Total 2 hours per week.

*DENT 175 COMMUNITY HEALTH II (2 cr.)—A continuation of DENT 174 with application of community health concepts through supervised field experiences at various community sites. Literature review and directed journal research included. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DENT 231 DENTAL HYGIENE III (4 cr.)—Supervised clinical practice in the dental hygiene clinic with emphasis on refining patient treatment skills. Seminar to include advanced instrumentation techniques, care for patients with intra-oral appliances, and extraoral radiographic techniques. Lecture 2 hours, Laboratory 6 hours, Total 8 hours per week.

DENT 232 DENTAL HYGIENE IV (6 cr.)—Supervised clinical practice and off-campus clinical rotations at various community facilities. Emphasis is placed on treating patients demonstrating periodontal involvement, applying knowledge and skills acquired in previous quarters. Seminar topics to include dental needs and treatment modifications for special patients. Lecture 1 hour, Laboratory 15 hours, Total 16 hours per week.

DENT 233 DENTAL HYGIENE V (6 cr.)—Supervised clinical practice and off-campus clinical rotations at various community facilities. Emphasis is placed on refining treatment skills for patients demonstrating moderate to advanced periodontal involvement. Application and correlation of knowledge from previous and current quarters is stressed. Seminar topics to include dental specialties and the role of the hygienist in specialty practice settings. Lecture 1 hour, Laboratory 15 hours, Total 16 hours per week.

DENT 234 DENTAL HYGIENE VI (6 cr.)—Supervised clinical practice and off-campus clinical rotations at various community facilities. Emphasis is placed on synthesis of knowledge from previous didactic, laboratory, and clinical experiences, treatment of patients with moderate to advanced periodontal involvement, and improving clinical speed while maintaining quality in preparation for practice. Seminar topics to include current advances in the field of dentistry and dental hygiene. Lecture 1 hour, Laboratory 15 hours, Total 16 hours per week.

* Pending Approval

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. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 112 TECHNICAL DRAFTING II (2 cr.)—Prerequisite DRFT 111 or equivalent. Sections and conventions, threads and fasteners, pictorial drawings, auxiliaries and revolutions. Lecture 1 hours, Laboratory 3 hours, Total 4 hours per week.

DRFT 113 TECHNICAL DRAFTING III (2 cr.)—Prerequisite DRFT 112 or equivalent. Assembly and detail drawings, working from the simple to the complex. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 158 ELECTRICAL-ELECTRONICS DRAFTING (2 cr.)—Applications of drafting procedures with emphasis on working and functional drawings and direct applications to electrical and electronic components and circuits. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 171 BLUEPRINT READING I (2 cr.)—The purpose of blueprints, designing of the product and its production; review and application of basic principles, visualization, othographic projection, detail of drafting shop process and terminology, assembly drawings and exploded views. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

DRFT 172 BLUEPRINT READING II (2 cr.)—Prerequisite DRFT 171 or permission of instructor. Dimensioning, review and application techniques, changes and corrections, classes of fits, tolerances and allowances, sections and convention in blueprint reading, auxiliary views, pictorial drawings, simplified drafting procedures. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ECONOMICS

ECON 147 CONSUMER ECONOMICS (3 cr.)—Designed to foster an understanding of the American economic system and the individual's role as a consumer in that system. Lecture 3 hours per week.

ECON 160 SURVEY OF AMERICAN ECONOMICS (3 cr.)—A survey of the history, principles and policies of the American economic system. Some comparison with alternative economic systems. Lecture 3 hours per week.

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 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. Lecture 3 hours per week.

ECON 214-215 PRINCIPLES OF ECONOMICS I-II (5 cr.) (4 cr.)—Two quarter sequence covering ECON 211-212-213. Lecture 5 hours per week in ECON 214 and Lecture 4 hours per week in ECON 215.

ECON 241-242-243 MONEY AND BANKING I-II-III (3 cr.) (3 cr.) (3 cr.)—Monetary standards; the role of money in the performance of an economic system; operation and evolution of the commercial and central banking systems; developments in the theory of money and income; application of theory to analysis of policy questions including government finance and debt management. Lecture 3 hours per week.

ECON 246 MONEY AND BANKING (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, operations and organization; present-day financial structures, agents, problems and institutions are examined in depth. Lecture 3 hours per week.

ECON 256 CONTEMPORARY ECONOMIC PROBLEMS (3 cr.)—Prerequisite ECON 160 or 211. An intense study of the major economic problems facing society today. Emphasis will be placed on both proper analysis of economic problems and formulation of corrective policy. The course will further endeavor to develop the student's critical faculties by exposure to the divergent opinions of eminent economists and open classroom debate and discussion. Lecture 3 hours per week.

ECON 298, 299—**See General Usage Courses**

EDUCATION

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 storytelling, and stresses use of audio-visual materials, Lecture 3 hours per week.

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. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 120 INTRODUCTION TO EARLY CHILDHOOD EDUCATION (3 cr.)—Corequisite EDUC 190. Introduction to early childhood development through activities and experiences in prekindergarten, kindergarten and primary programs; classroom organization and procedures, use of classroom time and materials, approaches to education for young children, and curricular procedures. Lecture 3 hours per week.

EDUC 121-122 CHILDHOOD EDUCATION I-II (3 cr.) (3 cr.)—Corequisite EDUC 190. Designed to focus attention on the easily observable characteristics of children from birth through the adolescent period. The lessons will outline the characteristics in several categories: general, relations with adults, intellectual skills, physical growth, and relations with children in their own age group. Lecture 3 hours per week.

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 in-depth and informal assessment procedures and devices, with application to "matching" differential diagnosis with specific instructional materials and strategies. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 129 THE PRACTICE OF CHILD CARE (3 cr.)—An overview of the various aspects involved with the operation of child care institutions as applied to those who are employed in the actual practice and to those who may be seeking employment in the field. Topics including early childhood development; developing positive behavioral patterns; materials resources and activities; administrative aspects of operation; nutrition and health for the preschool child; encouraging parent involvement; and the emergency situations and obligations are usually examined. Course is normally structured as series of seminars with various experts providing leadership for each topic studied. Lecture 3 hours per week.

EDUC 136 MATERIALS AND EQUIPMENT FOR INSTRUCTIONAL AIDES (3 cr.)—The preparation of view graphs, the construction of graphic charts, and other aids; how to select slides and develop materials for classroom presentation, the operation, care and use of instructional equipment, including audio-visual equipment most used in the classroom. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

EDUC 137 CREATIVE ACTIVITIES FOR CHILDREN (3 cr.)—Designed to prepare individuals for working with young children in art and other creative activities. Emphasizes coverage of suitable materials and the laboratory application. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

EDUC 175 PARENT EDUCATION II (3 cr.)—Advanced topics in parenting with special emphasis on group and individual concerns. Topics will be centered on preschool and elementary age children. A family case study will be required, and techniques of working with parent groups will be demonstrated. Lecture 3 hours per week.

EDUC 186 CHILD STUDY (3 cr.)—Prerequisite PSYC 130 or PSYC 231-232. 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. Lecture 2 hours. Laboratory 3 hours, Total 5 hours per week.

EDUC 188 AFFECTIVE EDUCATION IN THE CLASSROOM (3 cr.)—A lecture/discussion/experientially based course, designed to teach the basic human relations skills needed to function as an effective teacher. The focus will be on communication skills and instructional strategies that have high probability for facilitating human potential in the classroom. Students will learn a new method for resolving conflict, a new model for consulting with parents and other skills needed to foster the mental health of both students and teachers and permit both to grow and actualize themselves. Lecture 3 hours per week.

EDUC 190 COORDINATED PRACTICE IN CHILD DEVELOPMENT EDUCATION (1-5 cr.)—to be corequisite with EDUC 120, 121, 122. **See General Usage Courses**

EDUC 198 SEMINAR AND PROJECT IN CHILD DEVELOPMENT EDUCATION (1-5 cr.) **See General Usage Courses**

EDUC 199 SUPERVISED STUDY (1-5 cr.) **See General Usage Courses**

EDUC 210 INTRODUCTION TO SPECIAL EDUCATION (3 cr.)—Prerequisites 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. Lecture 3 hours per week.

EDUC 286 ADVANCED CHILD STUDY (4 cr.)—Prerequisite PSYC 130 or 231. 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. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

EDUC 287 MANAGEMENT OF CHILD CARE CENTERS (3 cr.)—Prerequisite EDUC 120. Budgeting and managing a child care center. Communication with and observation of local child care centers and participation in one professional conference or workshop will be required. Lecture 3 hours per week.

See also the description of other courses in the curriculum listed under sociology, psychology, health, mental health, mathematics, etc.

EDUC 290—**See General Usage Courses**

ELECTRICITY AND ELECTRONICS

ELEC 11-12-13 ELECTRICITY I-II-III (4 cr.) (4 cr.) (4 cr.)—Corequisite MATH 11 or equivalent. Principles of electricity covering resistance, current, and voltage in both AC and DC circuits. Lecture 4 hours per week.

ELEC 20 ELECTRONICS SURVEY (3 cr.)—Prerequisite ELEC 12 or equivalent. The study of the electron and its behavior in passive and active circuits and components. Electrical-electronic components and circuits demonstrated as applied to modern Electronic Systems. Lecture 3 hours per week.

ELEC 21-22-23 ELECTRONICS I-II-III (4 cr.) (4 cr.) (4 cr.)—Prerequisite ELEC 12 or equivalent. Introduction to vacuum tube, semiconductor principles and circuitry. Lecture 4 hours per week.

ELEC 27 PULSE CIRCUITS (4 cr.)—Prerequisite ELEC 68. Review of networks, transient analysis, linear and nonlinear waveshaping. Pulse circuit use in counting, delays, synchronization, frequency division, logic and comparator circuits as applied to time, pulse and digital systems, circuit and systems analysis.Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 40 ELECTRONICS (7 cr.)—Prerequisite ELEC 11-12. Use of vacuum tubes and solid state devices in electronic circuits. Practical application through test/measuring instruments and building applicable electronic circuitry. Lecture 3 hours, Laboratory l2 hours, Total 15 hours per week.

ELEC 68 ELECTRONICS (6 cr.)—Prerequisite ELEC 40. The design concepts of untuned voltage and power amplifiers; special amplifying circuits, audio distribution, and audio devices with correlated laboratory. Lecture 3 hours, Laboratory 8 hours, Total 11 hours per week.

ELEC 73 ELECTRICAL AND CONTROL SYSTEMS (3 cr.)—Prerequisite ELEC 96 or equivalent. Trouble shooting and servicing electrical controls, electric motors, motor controls, motor starters, relays overloads, instruments and control circuits. Lecture 3 hours per week.

ELEC 76 Electrical Power (3 cr.)—Prerequisite ELEC 96 or equivalent.Circuit elements, direct current circuits and motors, single and three-phase circuits and motors, power distribution systems and protective devices. Lecture 3 hours per week.

ELEC 94-95-96 PRACTICAL ELECTRICITY I-II-III (3 cr.) (3 cr.) (3 cr.)—The fundamentals of electricity as applied to industrial, commercial and residential wiring and equipment installation. Includes terminology, symbols, diagrams, safety and the essential principles of DC and AC circuitry. Practical aspects of the National Electric Code are discussed. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

ELEC 111-112 INTRODUCTION TO ELECTRICAL CIRCUITS I-II (5 cr.) (5 cr.)—Corequisites ENGR 100, MATH 121-122 respectively. The study of resistance, magnetism, inductance, capacitance, and the transient state. An introduction to circuit theorems as applied to direct current circuits. Electrical circuits employing complex algebra, equivalent circuit therorems and modern techniques for the solution of complex circuit problems. Lecture 4 hours, Laboratory 3 hours, Total 7 hours per week.

ELEC 113 INTERMEDIATE ELECTRICAL CIRCUITS (3 cr.)—Prerequisite ELEC 112. Corequisite MATH 123, ELEC 199. Continuation of ELEC 112 with emphasis in application of circuit theorems to AC networks. Both single and polyphase circuits are studied with treatment to both active and passive circuit elements. Lecture 3 hours per week.

ELEC 118-119 INTRODUCTION TO ELECTRICAL SHOP I-II (1 cr. (1 cr.)—Use of hand tools commonly found in the electrical and electronics industry. A variety of projects requiring fabrication of electrical-mechanical equipment is developed, tested and reports written. Laboratory 3 hours per week.

ELEC 125 INTRODUCTION TO ELCTRONICS (5 cr.)—Prerequisite ELEC 113. The theory, properties, and application solid state devices and introductory concepts of digital circuit design. Lecture 4 hours, Laboratory 3 hours, Total 7 hours per week.

ELEC 145 INTRODUCTION TO ELECTRICAL MACHINES (4 cr.)—Prerequisite ELEC 113 or equivalent. Construction, theory of operation, and application of direct and alternating current machinery and transformer. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 150 INTRODUCTION TO COMMUNICATION SYSTEMS (4 cr.)—Prerequisite ELEC 113. An introduction to the techniques, application, design principles and regulation of digital and analog communication systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 197, 198,199—**See General Usage Courses**

ELEC 201-202-203 ELECTRICAL ENGINEERING TECHNOLOGY I-II-III (6 cr.) (7 cr.) (6 cr.)—Prerequisite ELEC 125. The theory and operation of semiconductor diodes, switching devices and regulators in power supplies. Discrete transistor and integrated circuit amplifier operating characteristics and design considerations, both for small signal and large signal amplifiers. Theory and application of feedback to amplifiers. Laboratory experiements demonstrate applications of theory. Lecture 5 hours, Laboratory 3-6-3 hours, Total 8-11-8 hours per week.

ELEC 211 ELECTRICAL MACHINES (4 cr.)—Prerequisite ELEC 113.Construction, theory operations and application of direct current machinery. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 212 ELECTRICAL MACHINES AND INDUSTRIAL CONTROLS (4 cr.)—Prerequisite ELEC 211 and ELEC 125. Construction, theory of operation, characteristics, and application of alternator, synchronous motors, induction motors, and fractional horsepower motors. Introduction to the principles of industrial control, circuit diagram functions and symbols to "traditional" motor control, the principles of operation and application of the devices used for control and protection. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per

ELEC 214 ELECTRICITY (4 cr.)—Prerequisite MATH 122. Corequisite PHYS 123. A course for non-electrical students covering direct and alternating current theory with some introduction to electrical machines. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 225 DEVICES, APPLICATIONS AND SYSTEMS (4 cr.)—Prerequisites ELEC 239 and either ELEC 211 or ELEC 145. A study of devices and circuits associated with process control and data communication systems. Systems applications are also exmained. Approximately one-half of the course is devoted to control systems and one-half is devoted to communication systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 237 DIGITAL LOGIC CIRCUITS (4 cr.)—Prerequisite ELEC 125. A comprehensive course in the design and use of digital logic circuits using standard integrated circuits and the functional block approach. Emphasis on the characteristics and use of TTL, ECL, and COS/MOS ICs to design encoders, decoders, counters, and registers. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 239 DIGITAL LOGIC CIRCUITS II (3 cr.)—Prerequisites ELEC 237 or equivalent. Continuation of ELEC 237, with hardware applications in computer systems. The 8080 based micorprocessor is studied, with emphasis on interfacting it to the "outside world." Its application in data acquisition and as a system controller is studied. Lecture 2 hours, Laboratory 2 hours, Total 4 hours

ELEC 241-242 COMMUNICATIONS I-II (4 cr.) (4 cr.)—Prerequisites ELEC 125 and MATH 123. The study of modulation and power in modulated waves, sinusoidal oscillations and oscillators. RF amplifiers and detectors, and AM receivers. The study of transmitters and receivers; FM receivers, RF power amplification, AM, SSB, and FM transmitters, and an introduction to transmission lines and antennas, measurements, microwave frquencies; introduction to radar and television systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 250 INTRODUCTION TO COMPUTERS (4 cr.)—Corequisite ELEC 125. The concepts and features of electronic computers; fundamentals of internal operations, number systems, digital circuits, Boolean algebra, basic logical design techniques, analysis in input/output devices, control and arithmetic units, memory units and limited programming. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ELEC 297, 298, 299—**See General Usage Courses**

EMERGENCY MEDICAL TECHNOLOGY

EMDT 111 EMERGENCY MEDICAL SERVICES TECHNOLOGY I (4 cr.)—A study of the current status of the emergency medical system and the role and responsibilities of an Emergency Medical Technician/Ambulance (EMT/A). The anatomy and physiology of the chest, abdomen, and head are studied as well as the practical application of the techniques of patient assessment, basic life support, hemorrhage control, and the bandaging of soft-tissue trauma. Cardiopulmonary Resuscitation Certification by the American Heart Association will be included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

EMDT 211 ADVANCED EMERGENCY MEDICAL SERVICES TECHNOLOGY I (4 cr.)—Prerequisites EMDT 13. A review of the anatomy and physiology of the cardiovascular system with emphasis upon the structure, function, and electrical conduction of the heart. Assessment of the suspected cardiac patient and pathiophysiology of coronary heart/artery disease. The interpretation and treatment of basic arrhyhtmias, electrocardiogram monitoring defibrillation, carotid sinus massage, pace makers, and mechanical heart/lung machines are included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

EMDT 212 ADVANCED EMERGENCY MEDICAL SERVICES TECHNOLOGY II (4 cr.)—A study of therapeutic drugs with emphasis upon their effect, indications, contraindications, dosages, side effects, and techniques of administration. The assessment and management of central nervous system, soft-tissue and musculo-skeletal trauma, as well as neonatal, pediatric, obstetrical and gynecoloigical emergnecies are studied. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

ENGINEERING

ENGR 100 INTRODUCTION TO ENGINEERING TECHNOLOGY (2 cr.)—Corequisite MATH 118 or equivalent. Professional fields of engineering technology; work of the engineering technologist, requirements of training and character, professional ethics, and division of industrial practice and competition, engineering problems with calculator and computer applications. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

ENGR 104 INTRODUCTION TO ENGINEERING (3 cr.)—Corequisite MATH 141 or equivalent. Introduction to professional fields of engineering; historical background; professional ethics and responsibilities of engineers. Application of hand calculator to engineering problem solving. Basic Graphic Techniques and U.S. customary and S.I. units and their conversions. Lecture 3 hours per week.

ENGR 105 INTRODUCTION TO ENGINEERING METHODS (3 cr.)—Prerequisite ENGR 104. Introduction to the digital computer. Use of scientific language, programming engineering problems. Lecture 3 hours per week.

ENGR 121 ENGINEERING GRAPHICS I (2 cr.)—Prerequisite MATH 121 or equivalent. Graphical methods used in engineering design, layout and calculation, study of vector geometry, properties and types of graphs for engineering and scientific purposes. Lecture 1 hours, Laboratory 3 hours, Total 4 hours per week.

ENGR 122 ENGINEERING GRAPHICS II (2 cr.)—Prerequisite ENGR 121. Graphical methods used in engineering design, layout and calculation, study of vector geometry, properties and types of graphs for engineering and scientific purposes. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

ENGR 140 STATICS OF PARTICLES AND RIGID BODIES (3 cr.)—Prerequisite MATH 142. Review of vector algebra. Vector treatment of concept of force, mass, space, and time. Units of measurement (including both U.S. customary and S.I. units). Equilibrium of discrete force systems; centroids, dry friction; and distributive forces. Truss and simple frame analysis. Lecture 3 hours per week.

ENGR 151 MECHANICS I (STATICS) (4 cr.)—Prerequisite MATH 118 or equivalent; Corequisite MATH 121. Principles of statics; resultants and equillibrium of force systems; trusses and frames; structures containing three-force members; centroids; moments of inertia· dry friction. Lecture 4 hours per week.

ENGR 197—**General Usage Courses**

ENGR 206 ENGINEERING ECONOMY (3 cr.)—Economic decision process in the engineering design environment. Investment, financing, depreciation, manufacturing costs, economic selection replacement. Lecture 3 hours per week.

ENGR 241 MECHANICS OF PARTICLES (3 cr.)—Prerequisite ENGR 140. Vector treatment of planar and three-dimensional kinematics and kinetics of particles; relative motion, Newton's laws, work and energy, impulse and momentum, vibration of particles. Lecture 3 hours per week.

ENGR 242 DYNAMICS OF RIGID BODIES (3 cr.)—Prerequisite ENGR 241. Vector treatment of planar and three-dimensional kinematics and kinetics of rigid bodies; mass moments of inertia, Newton's laws, work and energy, impulse and momentum, vibration applied to rigid bodies. Lecture 3 hours per week.

ENGR 243 MECHANICS OF DEFORMABLE SOLIDS (5 cr.)—Prerequisite ENGR 140. Structural mechanics applied to trusses, frames; introductory mechanics of continuous media; concepts of stress, strain, stress-strain relations; stress and deformation due to longitudinal loads, torsion, and bending; eccentric loads on short posts. Euler column theory. Lecture 5 hours per week.

ENGR 252 ENGINEERING MECHANICS II (Strength of Materials) (4 cr.)—Prerequisite ENGR 151. Introductory mechanics of continuous media. Concepts of stress and deformation due to longitudinal loads; torsion and bending, plane stress. Lecture 4 hours per week.

ENGR 297—**See General Usage Courses**

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 curriculums. Emphasis on individual instruction. A student's enrollment is limited to a maximum of two quarters, except in unusual circumstances. Variable hours.

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 reregister 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 reregister for this course in subsequent quarters as necessary until the course objectives are completed. Variable hours.

ENGL 101-102 COMMUNICATION SKILLS I-II (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.Lecture 3 hours per week.

ENGL 109 COMMUNICATION IN BUSINESS AND INDUSTRY (3 cr.)—Functions of communications in business and industry. Methods for communicating effectively in business and industry with emphasis on gathering, organizing, and transmitting information. Review of basic techniques of effective oral and written communications. Lecture 3 hours per week

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. Lecture 3 hours per week.

ENGL 121-122-123 JOURNALISM I-II-III (3 cr.) (3 cr.) (3 cr.)—Instruction and classroom practice in gathering, evaluating, and writing news. Techniques of page layout, newspaper make-up, rewriting, and editing. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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 and analysis, and organization of ideas in a logical pattern. Lecture 3 hours per week.

ENGL 199—**See General Usage Courses**

ENGL 228 CREATIVE WRITING I (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. Lecture 3 hours per week.

ENGL 234 CREATIVE WRITING II (3 cr.)—Prerequisite ENGL 228. A continuation of Creative Writing (ENGL 228) including experiments in novel, short story, and playwriting. Lecture 3 hours per week.

ENGL 251-252-253 SURVEY OF AMERICAN LITERATURE I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite ENGL 113 or departmental approval. American Literature from colonial times to the present. Emphasis on the ideas, themes, and characteristics of our national literature. Lecture 3 hours per week.

ENGL 261-262-263 SURVEY OF ENGLISH LITERATURE I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite ENGL 113 or departmental approval. A survey of major English writings from early times to the modern period. Emphasis on the ideas, themes, and characteristics of English literature. Lecture 3 hours per week.

ENGL 299—**See General Usage Courses**

FRENCH

FREN 101-102-103 INTRODUCTORY FRENCH I-II-III (4 cr.) (4 cr.) (4 cr.)—The understanding, speaking, reading, and writing of French with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

FREN 199—**See General Usage Courses**

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 departmental permission. Advanced study in the understanding, speaking, reading, and writing of French. French used in the classroom. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

FREN 299—**See General Usage Courses**

FIRE

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 maintaining records. Lecture 3 hours per week.

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 equipmnet and manpower at various echelons. Lecture 3 hours per week.

FIRE 111 HAZARDOUS MATERIALS I (3 cr.)—Identification and characteristics of materials contributing to fire hazards including chemicals, gases, flammable liquids, and radiological materials, and an examination of their storage, handling and transportation, and related fire science porblems. Lecture 3 hours per week.

FIRE 120 FIRE PROTECTION EQUIPMENT AND SYSTEMS (3 cr.)—The examination and utilization of portable extinguisher equipment, sprinkler systems, protection systems for special hazards, and fire alarm and protection systems. Visits to local facilities. Lecture 3 hours per week.

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. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

FIRE 237 ARSON DETECTION AND INVESTIGATION (3 cr.)—Prerequisite FIRE 100. Introduction to arson laws and types of incendiary fires. Determing fire causes, recognizing and preserving evidence; interrogation of adults and juveniles; court procedures. Lecture 3 hours per week.

GENERAL

GENL 100 ORIENTATION (1 cr.)—Orientation is a course designed to aid Virginia Western students in their personal, social, and academic adjustment to the college community. Orientation is an exploratory course with major emphasis placed on self-awareness, career awareness, individual goal setting, and career decision making.

GENL 106 PERSONAL DEVELOPMENT FOR WOMEN (2 cr)—Personal Career Development for Mature Women is a counseling course designed specifically to meet the psychological and educational adjustment needs of the mature female college student. The course is an exploratory course seeking to aid the student in defining and resolving situational and personal factors which may impede intellectual and personal growth and development. Major emphasis is placed on self-exploration, career exploration, decision making and the development of a career self-identity.

GENL 108 CAREER DEVELOPMENT (3 cr.)—Career Development is a course designed to assist students in understanding themselves, their values, interest and aptitudes as these personal characteristics relate to career choice and the world of work. A major component of the course is career exploration and the application of decision-making skills to career choice.

GENL 198 STUDY SKILLS (3 cr.)—Study Skills is a course designed to aid the student in clarifying attitudes toward education as they apply to future goals, assist the student in understanding expectations of educators, and assist the student in becoming aware of and defining barriers which prevent successful study habits and skills. Study Skills will also assist the student in planning strategies to overcome nonproductive study habits, and assist the student in implementing positive study behavior.

GENL 298 PERSONAL DEVELOPMENT (2 cr.)—Personal Development is a counseling course in student life skills, The dynamics and contents of the course seek to integrate human relations training, problem solving skills, decision making, and goal setting. Major emphasis is placed on assisting the students toward a better understanding of themselves and their educational experience in preparation for adult roles in society. Emphasis is placed on examining personal and environmental factors which limit or enhance one's personal development. Emphasis is also placed on the acquisition of more effective communication skills for personal learning and development

GENL 299 JOB ENTRY TECHNIQUES (3 cr.)—Job Entry Techniques is a course designed to give the student experience in resume writing, preparation of applications, letters of application, and in successfully preparing for and completing a job interview. The course places major emphasis on the development of desirable work attitudes and habits.

GENERAL USAGE COURSES

NOTE: The following "General Usage Courses" apply to multiple curriculums and prefix sections. The titles and descriptions are generally applicable for such use.

(Insert Appropriate Prefix) 90, 190, 290 COORDINATED PRACTICE IN (Insert Appropriate Discipline) (1-5 cr.)—Supervised practice in selected health agencies coordinated by the College. Credit/Practice Ratio maximum 1:5 hours. May be repeated for credit. Variable hours.

(Insert Appropriate Prefix) 90, 190, 290 COORDINATED INTERNSHIP IN (Insert Appropriate Discipline) (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 hours. May be repeated for credit. Variable hours.

(Insert Appropriate Prefix) 97, 197, 297 COOPERATIVE EDUCATION IN (Insert Appropriate Discipline) (1-5 cr.)—Supervised on-the-job training for pay in approved business, industrial and service firms coordinated by the College's Cooperative Education Program. Applicable to all occupational-technical curriculums at the discretion of the College. Credit/Work Ratio not to exceed 1:5 hours, May be repeated for credit. Variable hours.

(Insert Appropriate Prefix) 98, 198, 298 SEMINAR AND PROJECT IN (Insert Appropriate Discipline) (1-5 cr.)—Completion of a project or research report related to the student's occupation and a study of approaches to a selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

(Insert Appropriate Prefix) 99, 199, 299 SUPERVISED STUDY IN (Insert Appropriate Discipline) (1-5 cr.)—Assignment of problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hours.

GEOGRAPHY

GEOG 240 PHYSICAL GEOGRAPHY (3 cr.)—A study of the major elements of the natural environment such as land forms, weather and climate, native vegetation, and soils; including their origins and distribution patterns. Provides a framework for understanding interrelationships of man and his physical setting in today's world. NO PREREQUISITE.

GEOG 250 CULTURAL GEOGRAPHY (3 cr.)—A study of human interrelationships and cultural diversity: the distribution of lands, peoples, and cultures. Considers the complex forces responsible for events in the world today. NO PREREQUISITE.

GEOG 260 ECONOMIC GEOGRAPHY (3 cr.)—A study of the production, movement, exchange, and consumption of goods and services and of the world distribution patterns of these activities. Stresses the physical setting and its limitations on the current,complex economic situation of the world we live in. (college transfer) NO PREREQUISITE.

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 and its plants and animals from the beginning to the present, with emphasis on the principles involved in interpreting geologic evidence. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

GEOL 104-105 GENERAL GEOLOGY I-II (6 cr.) (6 cr.)—Two quarter sequence covering GEOL 101-102-103. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.

GEOL 198,199—**See General Usage Courses**

GERMAN

GERM 101-102-103 INTRODUCTORY GERMAN I-II-III (4 cr.) (4 cr.) (4 cr.)—The understanding, speaking, reading, and writing of German with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

GERM 199—**See General Usage Courses**

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 departmental permission. Advanced study in the understanding, speaking, reading and writing of German. German is used in the classroom. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

GERM 299—**See General Usage Courses**

GOVERNMENT

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 level. Lecture 3 hours per week.

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. Lecture 3 hours per week.

GOVT 284-285 UNITED STATES GOVERNMENT I-II (5 cr.) (4 cr.)—Two quarter sequence covering GOVT 281-282-283. Lecture 5-4 hours per week.

GOVT 298,299—**See General Usage Courses**

HEALTH

HLTH 100 ORIENTATION TO ALLIED HEALTH CAREERS (1 cr.)—An orientation to the interrelated roles and functions of various members of the health team. Lecture 1 hour per week

HLTH 101 CARDIOPULMONARY RESUSCITATION MODULAR SYSTEM (1 cr.)—Training in coordinated mouth-to-mouth artificial ventilation and heart compression based upon the American Red Cross approved method. Successful completion of all phases of the course results in Red Cross certification in CPR. Lecture 1 hour per week.

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. Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

HLTH 110 CONCEPTS OF PERSONAL AND COMMUNITY HEALTH (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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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. Lecture 2 hours per week.

HLTH 126 INTRODUCTION TO MEDICAL TERMINOLOGY (3 cr.)—An introduction to Medical Terminology for students preparing for careers in the health professions. Lecture 3 hours per seek.

HLTH 130 HEALTH EDUCATION (2 cr.)—A course for nonhealth majors designed to study health from the individual's mental, social and physical well-being, and to study the principles, techniques, methods, and procedures relating to health practices. Lecture 2 hours, Laboratory 1 hour, Total 3 hours per week.

HLTH 138 ETHICS FOR HEALTH CARE PERSONNEL (3 cr.)—A study of ethical concepts of health care. Confidentiality, patient records, personal appearance, professionalism with patients/clients, associates, and awareness of types of health care facilities. Lecture 3 hours per week.

HLTH 140 INTRODUCTION TO DRUG USE AND ABUSE (3 cr.)—An introductory survey of the drugs used and abused in contemporary society, with emphasis upon sociological, physiological and psychological effects of drugs. Lecture 3 hours per week

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. Lecture 3 hours per week.

HISTORY

HIST 101-102-103 HISTORY OF WESTERN CIVILIZATION I-II-III (3 cr.) (3 cr.) (3 cr.)—The development of western civilization from ancient times to the present. The last two quarters deal with a survey of the period since the close of the Reformation. Lecture 3 hours per week.

HIST 111-112-113 UNITED STATES 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. Lecture 3 hours per week.

HIST 160 WOMEN IN HISTORY (3 cr.)—A survey of the role of women and attitudes toward 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. Lecture 3 hours per week.

HIST 187-188-189 BLACK HISTORY I-II-III (3 cr.) (3 cr.) (3 cr.)—A survey of the history of the Afro-American, 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. Lecture 3 hours per week.

HIST 198,199—**See General Usage Courses**

HIST 206 AMERICAN HISTORY SINCE WORLD WAR II (3 cr.)—An in-depth investigation of modern history from 1945 to the present with special emphasis on American involvement in international affairs. Lecture 3 hours per week.

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. Lecture 3 hours per week.

HIST 251-252-253 HISTORY OF MODERN EUROPE I-II-III (3 cr.) (3 cr.) (3 cr.)—The political, social, and economic developments from 1500 to the present. Lecture 3 hours per week.

HIST 261-262-263 HISTORY OF ENGLAND I-II-III (3 cr.) (3 cr.) (3 cr.)—The history of England from Roman times to the present. The first quarter encompasses the period from Roman and Anglo-Saxon times through the Wars of the Roses; the second quarter from 1485-1783; and the third quarter, from 1783 to the present. Lecture 3 hours per week.

HIST 273 THE HISTORY OF VIRGINIA III (3 cr.)—A survey of the cultural, political, economic history of the Commonwealth from its Elizabethan beginnings to the present. The first quarter covers the period ending in 1789; the second, from 1789 through 1900; the third, the twentieth century. Lecture 3 hours per week.

HIST 298,299—**See General Usage Courses**

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, greenhouses, and floral establishments. An introduction to growing, facility maintenance, transplanting and planting will form the laboratory experience. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 105 FLOWER GARDENING (3 cr.)—Basic home gardening techniques for growing of perennials, annuals, bulbs, and home propagation. Lecture 3 hours per week.

HORT 106 FUNDAMENTALS OF HORTICULTURE (3 cr.)—A general study of plant growth and development, horticultural principles and practices, horticultural crops with emphasis on ornamental crops. Lecture 3 hours per week.

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, cutting, grafting, budding, layering, land division, Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 110 TOOLS AND EQUIPMENT (3 cr.)—The tools and equipment currently in use in horticulture. Emphasis on the more complicated power-operated equipment including spreaders, sprayers, saws, and tractors. Safety, good maintenance and minor repair stressed. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 120 SOILS (4 cr.)—Theoretical and practical aspects of sound soil management in relation to production of horticultural crops. Includes soil identification, properties, analysis, fertilizers, pasteurization, potting mixtures, equipment used in soil trillage and soil conservation. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

HORT 126 LANDSCAPE CONSTRUCTION AND MAINTENANCE (3 cr.)—Survey of construction materials and equipment used for commercial and residential landscaping. Includes preparation of bids and estimation cost of landscape maintenance and construction projects. Development of skills and competencies in practical application of landscape design theory. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week

HORT 130 ENVIRONMENTAL FACTORS IN PLANT GROWTH (3 cr.)—Examines environment factors which affect plant growth including natural and artificial light, rainfall and irrigation, humidity, temperature, wind, root medium, nutrients, growth regulations, pesticides and pollutants, Discusses manipulation of these factors by horticulturists. Lecture 3 hours per week.

HORT 137 PLANTSCAPING FOR INTERIOR DESIGN (3 cr.)—A survey course which deals with the concepts, principles, and applied practices of innovative interior designing with plants for commercial and residential environments. Includes identification, selection, and cultural requirements and design characteristics of appropriate plant material. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 141 HORTICULTURE AND LANDSCAPING I (3 cr.)—Seasonal application of the principles concerning horticulture and landscaping; practical application for home planning and planting; plant taxonomy and desired habitats for acceptable and successful plants for the area; soil testing, fertilizers, insecticides and fungicides. Lecture 3 hours per week.

HORT 146 HORTICULTURAL BOTANY (4 cr.)—An elementary study of the principles of botany with application in commercial horticulture, considers fundamental aspects of taxomony, anatomy, reproduction, morphology, physiology, and genetics of plants. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

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. Lecture 2 hours, Total 4 hours per week.

HORT 170 FLORAL DESIGN AND ARRANGING (2 cr.)—An introduction to floral design with emphasis on the use of silk and dried materials. Students practice using basic floral designs in making arrangements and wreaths for special occasions such as Thanksgiving and Christmas. Lecture 2 hours per week.

HORT 197, 198—**See General Usage Courses.**

HORT 216 HORTICULTURAL ENTOMOLOGY (3 cr.)—Dicusses principles of insect anatomy, life cycles, and chemical as well as nonchemical control measures; students learn to identify, control and diagnose plant damage caused by common horticultural insect pests. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 217 HORTICULTURAL PLANT PATHOLOGY (3 cr.)—A study of the major diseases which attack horticultural crops. Considers methods for accurate identification and diagnosis of diseases problems and appropriate control measures. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 220 NURSERY MANAGEMENT (3 cr.)—The aspects of nursery work including plant growing, planting, transplanting, balling, burlapping, business methods in the nursery, buying and stocking the nursery and merchandising in this specialized area. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 230 GREENHOUSE MANAGEMENT (3 cr.)—The theoretical and applied practices of managing a greenhouse facility. Emphasis is on greenhouse construction and design, environmental control, energy conservation and other related topics. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 240 TURF MANAGEMENT (3 cr.)—The study of turf grasses grown in this geographical area. Examines propagation and production, planting and maintenance practices as well as the specialized equipment related to turf maintenance. Lecture 2 ours, Laboratory 2 hours, Total 4 hours per week.

HORT 250 LANDSCAPE PLANNING (2 cr.)—Prerequisite HORT 106 or HORT 256. The basic symbols used in landscape plans. Drafting and blueprint 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, lawns, shrubs, ground cover, and foundation plantings. Laboratory 4 hours, Total 4 hours per week.

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. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 257 HERBACEOUS PLANTS (3 cr.)—Identification, culture and uses of annuals, biennials, and perennials used in landscaping. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 258 LANDSCAPE DRAWING (3 cr.)—Prerequisite HORT 250. The basic symbols used in landscape plans. Drafting and blueprint 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, lawns, shrubs, ground cover, and foundation plantings. Laboratory 4 hours, Total 4 hours per week.

HORT 260 FLOWER SHOP MANAGEMENT (3 cr.)—A consideration of the principles of retail florist management, includes layout and design of a flower shop, floral merchandising, pricing of floral designs, florist wire services, wholesale sources and other topics related to the operation of a flower shop. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 266 HOUSE AND CONSERVATORY PLANTS (3 cr.)—Identification, culture, and propagation of potted and conservatory plants. Considers the environmental problems unique to the growth of indoor plants and their use in indoor landscaping. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

HORT 270 FLORAL DESIGN AND ARRANGING (2 cr.)—A pratical introduction to floral design with an emphasis on the use of fresh flowers. Students practice arranging and designing centerpieces, corsages, boutonniers, bud vases, etc. Laboratory 4 hours per week.

HORT 276 FLORAL DESIGN AND ARRANGING (2 cr.)—Prerequisite HORT 170 or HORT 270. A continuation of floral design and arranging with emphasis on acquisition of basic skills related to floral design and create wreaths, baskets, sprays, wedding flowers and corsages in the laboratory. Laboratory 4 hours per week.

HORT 290, 297, 298,299—**See General Usage Courses**

HUMAN SERVICES

HMSV 211-212-213 ALCOHOL/DRUG ABUSE REHABILITATION PROGRAMS (3 cr.) (3 cr.) (3 cr.)—A comprehensive course designed to provide knowledge, skills, and insight for working with drug and alcohol abuse programs. The course will emphasize personal growth, goal and value assessment, development of "helping relationship" and counseling for individual and group needs. Students will be provided opportunities for field experience in treatment centers. Lecture 3 hours per week.

HUMANITIES

HUMAN 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, and Modern. Lecture 3 hours per week.

LEGAL ADMINISTRATION

LEGL 110 AN OVERVIEW OF THE LEGAL PROCESS (3 cr.)—A review of the processes of basic American law as legal decisions are made by the judicial, legislative and administrative agencies. An overview of the American judicial system, the sources of law, and the general relationship between the federal and state court system. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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. Lecture 3 hours per week.

LEGL 216 INTRODUCTION TO BANKRUPTCY PRACTICE (3 cr.)—An introduction to bankrupcy practice, including bankruptcy courts and their jurisdiction, who may be adjudged a brankrupt, procedure, proof and allowance of claims, assets of the bankruptcy estates, exemptions, administration and distribution of bankruptcy estates, discharge, reorganization, and wage earner plans. Lecture 3 hours per week.

LEGL 234-235 ESTATE PLANNING I-II (3 cr.) (3 cr.)—An introduction to various devices used to plan estates, including wills, revocable and irrevocable trusts, joint ownership, powers of appointment, life insurance and the like. Students consider the utility of various plans, in the light of different property arrangements, family situations, and estate objectives of typical decedents. Lecture 3 hours per week.

LEGL 240 CORPORATE LAW (3 cr.)—The fundamental principles of corporate law including capitalization, articles of incorporation, by-laws, tax returns, reports, financial statements and minutes, officers, employment contracts and special problems. Lecture 3 hours per week.

LEGL 244 REAL ESTATE ABSTRACTING I (3 cr.)—The study of abstracting titles to real estate, recordation of instruments affecting land, use and mechanics of general indices, anatomy and composition of recorded documents for purposes of abstracting, search and mechanics of the title examination, description of land, priority of liens, liens imposed by localities, titles through wills, descent and chancery suits, and adverse possession. Review of legal consequences of bankruptcy, warranties, covenants, restrictions, dower-curtesy, easements and riparian rights as it affects titles to land. Lecture 3 hours per week.

LEGL 246 LAW OF INCOME TAXATION (3 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 jurisdictions, involved in the determination of income tax controversies. Lecture 4 hours per week.

LEGL 251 LEGAL TRANSACTIONS I (3 cr.)—Commercial principles and practices, Uniform Commercial Code. Major emphasis on contracts, warrants, title, consideration, performance, parties, subject matter and remedies for breach; torts, sales, negotiable instruments; consumer protection; insurance; wills and inheritance, bankruptcy, statute of limitations. Lecture 3 hours per week.

LEGL 257 REAL ESTATE LAW (3 cr.)—Principles and practices of real estate law, including titling, interstate succession and probate problems, liens, encumbrances and restriction, legal descriptions, surveying and research, contracting, financing, taxation, lending and bankruptcy. Lecture 3 hours per week.

LEGL 258 ADMINISTRATRION OF DECEDENT'S ESTATES (3 cr.)—The course is designed to teach students how to administer an estate efficiently. It includes instruction on substantive areas of law, as well as instruction on preparation of forms and provides samples for the efficient administration of decedent's estates. Lecture 3 hours per week.

MARKETING

MKTG 100 PRINCIPLES OF MARKETING (3 cr.)—The principles, methods, and problems involved in the distrtibution 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. Lecture 3 hours per week.

MKTG 109 PRINCIPLES OF SALESMANSHIP (3 cr.)—The development of selling standards, methods and buying motives. The organization and training processes necessary for a well-coordinatd sales plan through united efforts of the sales force. The training of sales personnel for maximum efficiency in selling. Lecture 3 hours per week.

MKTG 136 RETAIL ORGANIZATION & MANAGEMENT (3 cr.)—Theorganization of business to accomplish their goals in the most effective and efficient manner. Location, layout, internal management, policy development, methods of operations, merchandise control and protection, property maintenance, and analysis of results. Lecture 3 hours per week.

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. Lecture 3 hours per week.

MKTG 157 PRINCIPLES OF CASUALTY INSURANCE AND SURETY BONDS (3 cr.)—Prerequisite MKTG 150 or equivalent. Automobile liability insurance and policy terms, workmen's compensation and employer's liability, comprehensive liability, professional and personal liability, fidelity and surety bonds, theft coverages, miscellaneous casualty coverages, multiple-line trends and coverages, health insurance. Lecture 3 hours per week.

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. Lecture 3 hours per week.

MKTG 165 PRINCIPLE OF REAL ESTATE II (3 cr.)—Prerequisite MKTG 164. Continued examinations of marketing fundamentals. Emphasis on the 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. Lecture 3 hours per week.

MKTG 168 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. Lecture 3 hours per week.

MKTG 197—**See General Usage Courses**

MKTG 208 BANK PUBLIC RELATIONS AND MARKETING (3 cr.)—The basis of public relations, both internal and external; the why, what, and how of public relations and marketing. An overview in terms of what everyone in banking should know about the essentials of bank public relations and marketing. Lecture 3 hours per week.

MKTG 209 SALES MANAGEMENT (3 cr.)—From the viewpoint of management, study of the organization and operations of the sales division within the business enterprise. Planning, organizing, and controlling the total sales effort; use of the case method of learning. Lecture 3 hours per week.

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 sources 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 sytems. Merchandising selection policy and pricing for profit. Lecture 3 hours per week.

MKTG 220 INTRODUCTION TO FASHION DESIGN (3 cr.)—An introductory course in the basic techniques of the development of fashions. Also includes pencil sketching of original designs and a complete study of the garment industry and fashion designers. Lecture 3 hours per week.

MKTG 225 PRINCIPLES OF ADVERTISING (3 cr.)—Study of the functions, principles, and techniques of advertising, including the role of advertising in the marketing system. Lecture 3 hours per week.

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. Lecture 3 hours per week.

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 force and store policies to develop favorable customer relationships. Institutional practices which develop goodwill for the store. Lecture 3 hours per week.

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 responsitilities. Writing contracts, closing and settelement, and follow-up relations. Lecture 3 hours per week.

MKTG 267 REAL ESTATE APPRAISAL (3 cr.)—Fundamentals of real estate evaluations; method 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. Lecture 3 hours per week.

MKTG 268 PROPERTY MANAGEMENT (3 cr.)—Prerequisite MKTG 165. The field of property management; professional aspects of real estate brokerage, properties, neighborhood analysis, tenants and qualifications, aspects of maintenance and repair. Lecture 3 hours per week.

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. Lecture 3 hours per week.

MKTG 274 ADVANCED REAL ESTATE SALES (3 cr.)—Advanced fundamentals of real estate brokerage and sales procedures as they apply to the real estate business. Relations of broker and salesmen, salesmen and client, and responsibilites. Writing contracts, closing and settlements, and follow-up relations. Lecture 3 hours per week.

MKTG 275 ADVANCED REAL ESTATE APPRAISAL (3 cr.)—Advanced fundamentals of real estate evaluation; methods used in determining value; advanced procedures and techniques by utilizing actual appraisals, discussion of the many fields available in appraisal activity of real estate. Lecture 3 hours per week.

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. Lecture 3 hours per week.

MKTG 278 REAL ESTATE ECONOMICS (3 cr.)—Nature and classification of land economics, the development of property, construction subdivision, economic values and real estate evaluation, real estate cycles and business fluctuations, residence market trends, rural property and special purpose property trends. Lecture 3 hours per week.

MKGT 279 REAL ESTATE INVESTMENT (3 cr.)—An examination of Real Estate Investment with emphasis on tax shelters, limited partnerships, syndications, exchanges and modern techniques of mortgage equity requirements and depreciation guidelines. Lecture 3 hours per week.

MKTG 297,298,299—**See General Usage Courses**

MATHEMATICS

MATH 01 DEVELOPMENTAL ARITHMETIC (3 cr.)—A developmental course in arithmetic for students who need to build up their arithmetic skills before entering higher level mathematics courses. Lecture 3 hours per week.

MATH 02 DEVELOPMENTAL BUSINESS MATHEMATICS (3 cr.)—For Business Math students only. A developmental course which is designed to bridge the gap between arithmetic and the College's business mathematics sequence BUAD 121-122-123. Topics include fundamental operations in arithmetic and algebra, percents, simple equations, ratios and proportions, and word problems. Lecture 3 hours per week.

MATH 06-07 BASIC ALGEBRA I-II (5 cr.) (5 cr.)—A developmental course in algebra, designed to develop the mathematical proficiency necessary for selected curriculum entrance. MATH 06 covers the basic material normally covered in high school Algebra I while MATH 07 covers the material in Algebra II. Lecture 5 hours per week.

MATH 08 BASIC GEOMETRY (3 cr.)—Prerequisite Algebra I or MATH 06. A developmental course in plane geometry, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Lecture 3 hours per week.

MATH 09 BASIC TRIGONOMETRY (3 cr.)—Prerequisite Algebra II or Math 07. A developmental course in trigonometry, designed to develop the mathematical proficiency necessary for selected curriculum entrance. Lecture 3 hours per week.

MATH 11-12-13 ELEMENTS OF MATHEMATICS I-II-III (3 cr.) (3 cr.) (3 cr.)—Designed for the occupational student. Practical applications of elementary mathematics including algebra, geometry, trigonometry to everyday problems in the manufacturing and trade world. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MATH 50 BUSINESS MATHEMATICS (3 cr.)—Review of the fundamentals of mathematics related to business activities. Emphasis on the the use of percents, discounts, interest, depreciation, insurance calculations, and other practical business problems. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MATH 99—**See General Usage Courses**

MATH 111-112-113 TECHNICAL MATHEMATICS I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite: Three units of high school math (Algebra I, Algebra II, Geometry) or the developmental equivalent. Designed for the radiography student. Operations with algebraic expressions, equations, inequalities, functions, graphs, systems of equations, trigonometry, logarithms, exponents, ratios and proportions, analytical geometry, polar equations, and sequences and series. Lecture 3 hours per week.

MATH 118-119 INTRODUCTION TO TECHNICAL MATHEMATICS I-II (5 cr.) (5 cr.)—Prerequisite 2 units of high school math including Algebra or satisfactory score on the mathematics placement test. Applications of arithmetic. algebra, geometry and trigonometry to technical problems. Lecture 5 hours per week.

MATH 121-122-123 ENGINEERING TECHNICAL MATHEMATICS I-II-III (5 cr.) (5 cr.) (5 cr.)—Prerequisite MATH 118 or three units of high school mathematics other than general mathematics, or satisfactory score on appropriate mathematics proficiency examinations. Algebra, trigonometry, introduction to calculus, and some emphasis on graphical methods. The course sequence includes solutions of linear and quadratic equations, trigonometric functions, trigonometric curve sketching, logarithms, ratio, proportion and variation, vectors, complex numbers and the binomial theorem. Credit cannot be obtained for both this course and MATH 161-161-163 (College Mathematics). Lecture 5 hours per week.

MATH 130 MATHEMATICS FOR COMMUNITY AND SOCIAL SERVICES (4 cr.)—Intended for students enrolled in the Community and Social Services curriculum and related areas. Includes a review of arithmetic skills, an introduction to basic algebra, consumer mathematics, interpretation of graphs and tables, and elementary statistics. Lecture 4 hours per week.

MATH 139 HEALTH SCIENCE MATHEMATICS (2 cr.)—A review of mathematics with emphasis on calculations involving dosages of drugs and concentration of solutions, including the following topics: metric system, apothecaries' system, household system, equivalents, oral medications, parenteral medications, pediatric medications, and preparation of solutions. Lecture 2 hours per week.

MATH 141-141-143 INTRODUCTORY MATHEMATICAL ANALYSIS I-II-III (5 cr.) (5 cr.) (5 cr.)—Prerequisites are a satisfactory score on appropriate mathematics proficiency examination or four units of high school mathematics including two units of algebra, one of geometry, and one-half of trigonometry or equivalent. Students not adequately prepared for MATH 141 should complete MATH 161-162 prior to enrolling in MATH 141. A modern unified course in analytic geometry and calculus including functions, limits, derivatives, differentials, indefinite integrals, definite integrals, and vector analysis. Lecture 5 hours per week.

MATH 150 INTRODUCTION TO COMPUTER MATHEMATICS (3 cr.)—Prerequisite 2 units of high school math. An introduction to the computer with an emphasis on fundamental skills needed in mathematics, business, and science. Students will be required to utilize the BASIC language to solve problems from different disciplines. Not for Data Processing or Engineering majors. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MATH 161-162 COLLEGE MATHEMATICS I-II (PRECALCULUS) (3 cr.) (3 cr.)—Prerequisite a satisfactory score on appropriate mathematics proficiency examinations or three units of high school mathematics including two units of algebra and one unit of geometry or MATH 07. A course in precalculus mathematics. Topics include college algebra, functions, analytic geometry, logarithms, exponentials, matrices, trigonometry and applications. Lecture 3 hours per week. MATH 161-162 with MATH 163 completes a unified sequence in algebra, trigonometry, analytic geometry, and an introduction to calculus.

MATH 163 COLLEGE MATHEMATICS III (CALCULUS I) (3 cr.)—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, applications, and a brief introduction to integration. 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 three quarter calculus sequence designed for students with majors other than physics or engineering. Lecture 3 hours per week.

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, business administration, or engineering. Prerequisite Algebra I and either Algebra II or Geometry, or MATH 06 and MATH 08 or MATH 09. The first two quarters will include sets, the logic of algebra, the real number system, algebraic and transcendential functions, relations and graphs. The third quarter will include permutations, combinations, probability and elementary statistics. Lecture 3 hours per week.

MATH 188 INTRODUCTION TO ELEMENTARY STATISTICS (3 cr.)—An introduction to the methods of statistics including sampling from normally distributed populations, estimation, regression, testing of hypotheses, point and interval estimation methods. Lecture 3 hours per week.

MATH 198,199—**See General Usage Courses**

MATH 202 INTRODUCTION TO MATRIX ALGEBRA (4 cr.)—Prerequisite MATH 163, 143 or equivalent. Operations with matrices, determinants, systems of linear equations, vector spaces and linear tranformations, bilinear and quadratic forms. Lecture 4 hours

MATH 221-222 ADVANCED ENGINEERING TECHNICAL MATHEMATICS I-II (4 cr.) (4 cr.)—Prerequisite MATH 123. Differential and integral calculus, with emphasis on applied problems in the appropriate technological fields. Lecture 4 hours per week.

MATH 241-242-243 ADVANCED MATHEMATICAL ANALYSIS I-II-III (4 cr.) (4 cr.) (4 cr.)—(For students in Engineering and Science Curricula.) Prerequisite MATH 143. A course comprising infinite series, multiple integrals, linear algebra, and ordinary differential equations. Lecture 4 hours per week.

MATH 261-262 ADVANCED COLLEGE MATHEMATICS I-II (CALCULUS II-III) (3 cr.) (3 cr.)—Prerequisite MATH 163 or equivalent. A continuation of the unified course in algebra, trigonometry, analytic geometry, and calculus for students other than those in engineering. Topics included are differentiation and integration of exponential, logarithmic, and trigonometric functions; sequences and series; solid analytic geometry; multiple integrals; an introduction to differential equations. Lecture 3 hours per week.

MATH 281-282-283 STATISTICS I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite MATH 162 or MATH 183 or departmental approval. Introduction to the fundamental ideas of statistics, including a brief treatment of elementary probability, descriptive statistics, distributions, problems of sampling, normal distributions, measures of central tendency, sampling variance, confidence intervals, estimation, testing of hypotheses, regression correlation, and analyses of variance. Lecture 3 hours per week.

MATH 298,299—**See General Usage Courses**

MECHANICAL ENGINEERING TECHNOLOGY

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 tool. Lecture 1 hour, Laboratory 3 hours, Total 4 hours, per week.

MECH 132 MACHINE LABORATORY II (2 cr.)—Continued study of practical and industrial applications and set up, inspection tools, gauges, tapers, gear cutting, square threads and fits. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

MECH 156 MECHANISMS (2 cr.)—The purpose and actions of cams, gear trains, levers, and other mechanical devices used to transmit control. A study of motions of linkages, velocities and acceleration of points within a link mechanism; layout method for designing cams and gear train. Lecture I hour, Laboratory 3 hour, Total 4 hours per week.

MECH 176 INTRODUCTION TO COMPUTER NUMERICAL CONTROL MACHINING (3 cr.)—Prerequisites MECH 131-132 or equivalent. An introduction to computer numerical control machining including dimensioning, programming tape preparation, machine setup, and machine problems. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MECH 197—**See General Usage Courses**

MECH 199—**See General Usage Courses**

MECH 257-258 MACHINE DESIGN I-II (4 cr.) (4 cr.)—Prerequisite ENGR 252 and MATH 123. The analytical design of bearings, clutches, couplings, brakes, springs, gearing systems, and power shafting. Emphasis on methods of constructing machine parts and specifications of materials and manufacturing processes. Lecture 4 hours per week.

MECH 260 THERMODYNAMICS I (4 cr.)—Prerequisite MATH 123. Characteristics of gases; applied study of gas cycles and combustion processes. Lecture 4 hours.

MECH 268 FLUID MECHANICS (4 cr.)—Prerequisite ENGR 151. Properties of fluids and fluid flow. Bernouli's Theorem, measuring devices, viscosity and dimensional analysis. Emphasis on pumps, piping, and fluid motors. Lecture 4 hours per week.

MECH 297,298—**See General Usage Courses**

MEDICAL TRANSCRIPTION

MDRS 190 COORDINATED PRACTICE—Supervised training in Medical Records, Pathology and Radiology departments in hospitals.

MDRS 199—**See General Usage Courses**

MEDICAL ASSISTING

MDAS 199 MEDICAL ASSISTANT ADMINISTATION PROCEDURES (4 cr.)—Practice in the management of a physician's office in areas such as billing and payroll procedures, medical records, reception techniques, correspondence, management of supplies and equipment; public relations. Lecture 3 hours, Laboratory 3 hours.

MDAS 216 MEDICAL LAW AND ETHICS (3 cr.)—Basic instruction in the legal relationship of the physician and patient; medical liabilities; Medical Practice Acts; malpractice; professional attitudes and behavior; and types of medical practice. Lecture 3 hours per week.

MDAS 299 MEDICAL ASSISTANT CLINICAL PROCEDURES (4 cr.)—Clinical procedures in the physician's office including examining room technique, sterilization procedures, care of equipment and supplies, medical emergencies. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

MENTAL HEALTH

MENT 101-102-103 INTRODUCTION TO MENTAL HEALTH I-II-III (3 cr.) (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. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

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. Lecture 2 hours, Laboratory 3 hours, Total 5 hours

MENT 110 INTRODUCTION TO MENTAL HEALTH III (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. Lecture 3 hours per week.

MENT 190 COORDINATED PRACTICE IN MENTAL HEALTH (3 cr.)—Supervised practice in selected health agencies coordinated by the College. Credit/Practice Ratio Maximum 1:5 hours. May be repeated for credit. Variable Hours.

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 psychotherapy, 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. Lecture 3 hours per week.

MENT 236 PROBLEMS IN ADOLESCENCE (3 cr.)—Prerequisite MENT 101 or 104, PSYC 130 or departmental approval. An examination of the problems associated with adolescence with an in-depth look at personality, environmental, and developmental factors. Specific intervention strategies will be covered with emphasis on theory, rationale, and techniques appropriate for this age group. A review of contemporary intervention will be incorporated with a look toward the future needs of this group. Lecture 3 hours per week.

MENT 290 COORDINATED PRACTICE IN MENTAL HEALTH (3 cr.)—Supervised practice in selected health agencies coordinated by the College. Credit/Practice Ratio Maximum 1:5 hours. May be repeated for credit. Variable hours.

MUSIC

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 movement. Use of the keyboard and autoharp. Emphasis on pre-school through elementary grades. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

MUSC 111-112-113 MUSIC THEORY I-II-III (4 cr.) (4 cr.) (4 cr.)—Elements of musical notation. Structure of scales, intervals, and 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. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

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 knowledge in music and related cultural activities. Aural comprehension of music through listening to compositions from the various historical periods while noting the changes in musical elements in each period. Lecture 3 hours per week.

MUSC 131-132-133 CLASS VOICE I-II-III (2 cr.) (2 cr.) (2 cr.)—An introduction to the many aspects of singing from the physical act through the aesthetic experience. The course is designed for the average singer who desires vocal improvement, and for the voice major as an addition to and extention of skills and knowledge necessary for his artistic development. Lecture 1 hour, Laboratory 2 hour, Total 3 hours per week.

MUSC 138 CHORUS (1 cr.)

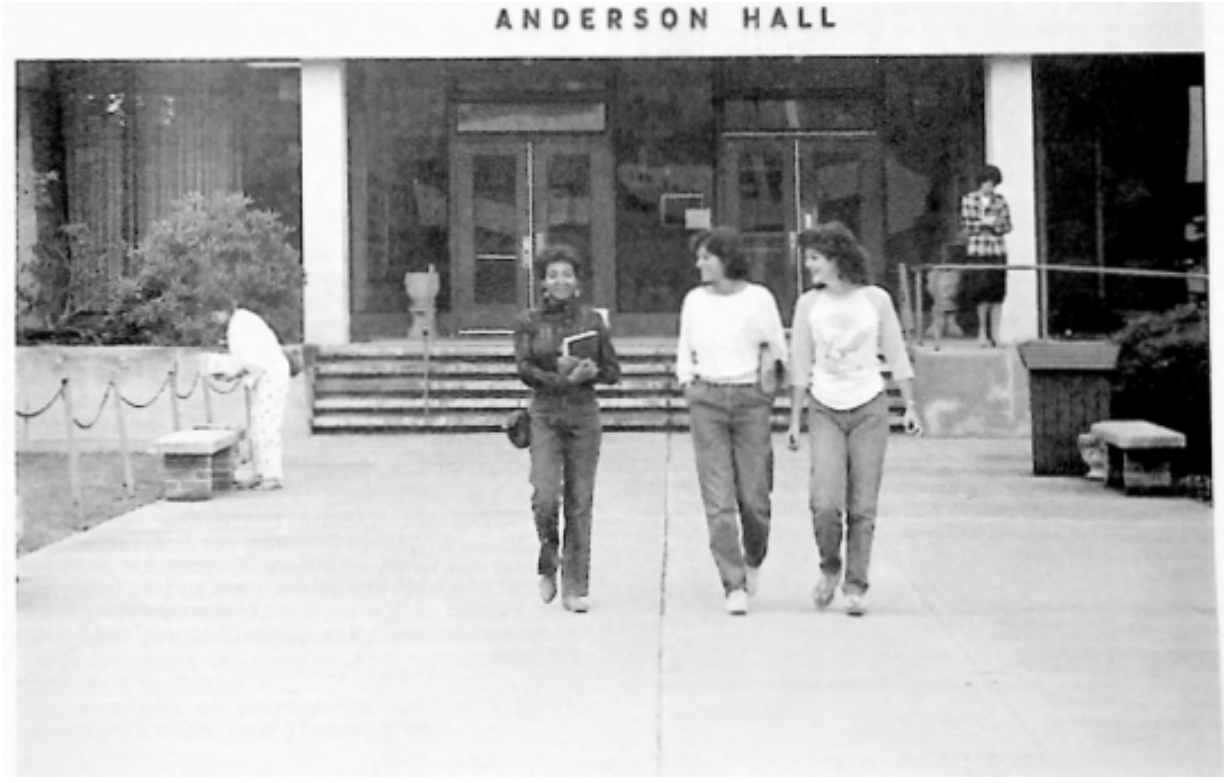
NATURAL SCIENCE

NASC 100 SURVEY OF SCIENCE (4 cr.)—A general survey course designed to familiarize the student with the principles of the biological and physical science. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

NASC 111-112 HEALTH SCIENCE I-II (4 cr.)—Prerequisite: one unit of high school biology or BIOL 101. Human anatomy and phsiology. Body systems and functions. Replaces BIOL 154-155. Lecture 3 hours. Laboratory 3 hours, Total 6 hours per week.

NASC 113 HEALTH SCIENCE III (4 cr.)—Microbiology. The characteristics and activities of microorganisms, showing their essential relation to diagnosis, treatment and prevention of diseases. Fundamentals of bacteriology, emphasizing their relationship to individual community health. Replaces BIOL 176. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

NASC 114-115 HUMAN ANATOMY AND PHYSIOLOGY I-II (6 cr.) (6 cr.)—Prerequisite: One unit of high school biology. A study of the human organ systems and their functioning as they relate to the allied health science. Lecture 5 hours, Laboratory 3 hours, Total 8 hours per week.



NASC 125 CONSERVATION OF NATURAL RESOURCES: Man and the Environment (3 cr.)—A study of the natural resources of Earth in the broadest sense: the components of man's physical and biological environment. The importance of rational use of air, water, living space food supply, energy and minerals is considered in relation to man's future in Earth's ecosystem. NO PREREQUISITE.

NASC 130 BODY STRUCTURE AND FUNCTION (3 cr.)—A survey of the structure and function of the human body. This course is designed as a non-transfer course for Dental Assistant students. Lecture 3 hours per week.

NASC 154-155 ASTRONOMY I-II (3 cr.) (3 cr.)—The history of astronomy and the developoment 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 extragalactic objects. 154 — Lecture 3 hours per week; 155 — Lecture 2 hours per week, Laboratory 2 hours, Total 4 hours per week.

NURSING

NURS 20 NURSING ASSISTANT (4 cr.)—Course in fundamentals of patient care with laboratory experience in foods and fluids, elimination, moving patients, morning, afternoon and evening care, care of hospital equipment, means of providing special comforts and safety, and admission and discharge procedures. Lecture 2 hours, Laboratroy 4 hours. Total 6 hours per week.

NURS 21 NURSING ASSISTANT—ADVANCED (4 cr.)—Prerequisite NURS 20. Course dependent upon fundamental skills of NURS 20. Advanced theory and laboratory experience in asepsis, sterile techniques, tube feedings and other skills required by nursing assistants working in the geriatric and psychiatric facilities. Lecture 2 hours, Laboratory 4 hours, Total 6 hours per week.

NURS 35 HOME HEALTH AIDE (4 cr.)—Introduction to principles of home health care. Review of body systems and functions. Includes special needs of older adults, the ill and disabled; skills in home management; nutrition; handling of medications; mental health principles. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

NURS 90-I COORDINATED PRACTICE (1 cr.)—Clinical experience in acute-care setting — Hospital experience. Clinical — 3 hours.

NURS 90-II COORDINATED PRACTICE (1 cr.)—Clinical experience in a long-term setting — Nursing Home and Patient Residents. Clinical 3 hours, Total 3 hours per week.

NURS 98 SEMINAR (2 cr.)—Nursing Assistant issues with simulated activities. Lecture 1 hour, Lab 2 hours. Total 3 hours per week.

NURS 130 INTRODUCTION TO NURSING (9 cr.)—Provides a framework for nursing practice. Man is presented across the lifespan as a unique bio-psychosocial being on the health-illness continuum. Internal and external forces which influence man are discussed. The nursing process is introduced as the framework for nursing practice. An overview of Maslow's hierarchy of human needs is presented with an emphasis on assessment of these basic needs. Lecture 6 hours, Laboratory 3 hours, Clinical 6 hours, Total 15 hours per week.

NURS 134 MINOR VARIATIONS IN BASIC HUMAN NEEDS I (9 cr.)—Prerequisite NURS 130. Utilizing the nursing process, NURS 129 presents minor variations across the life span in the basic human needs of safety, comfort, rest-sleep-activity, nutrition, elimination and sexuality. Dosage and solutions and beginning principles of pharmacology and medication administration are introduced. Lecture 6 hours, Laboratory 3 hours, Clinical 6 hours, Total 15 hours per week.

NURS 135 MINOR VARIATIONS IN BASIC HUMAN NEEDS II (10 cr.)—Prerequisite NURS 134. Utilizes the nursing process and scientific principles in providing care for clients in various age groups with needs related to oxygenation, communication, belonging and love, recognition, esteem and affection, sensation and regulation. Lecture 6 hours, Laboratory/Clinical 12 hours, Total 18 hours per week.

NURS 166 PHARMACOLOGY FOR NURSES I (3 cr.)—Course in the general principles of drug action, factors affecting drug action, pharmacology of the major drug classes and specific agents within each class and routine mathematical calculations necessary to alter dosages for pediatrics, geriatrics, and certain disease states. Lecture 3 hours per week.

NURS 231 MAJOR VARIATIONS IN BASIC HUMAN NEEDS I (10 cr.)—Prerequisite NURS 135. Through use of the nursing process, this course focuses on major interferences in communication, growth and development, comfort, rest-sleep-activity, nutrition, elimination and sensory function. Each alteration in basic human needs is examined throughout the lifespan. Legal, ethical, and professional roles are explored. Lecture, 6 hours, Laboratory/Clinical, 12 hours, Total 18 hours per week.

NURS 232 MAJOR VARIATIONS IN BASIC HUMAN NEEDS II (10 cr.)—Prerequisite NURS 231. This course focuses on major interferences in oxygenation and safety throughout the lifespan. Increased accountability and communication skills are stressed. Lecture 6 hours, Laboratory/Clinical, 12 hours, Total 18 hours per week.

NURS 233 MAJOR VARIATIONS IN BASIC HUMAN NEEDS III (10 cr.)—Prerequisite NURS 232. This course focuses on major interferences in fluids and electrolytes, neuroregulation, sexuality, love and belonging, recognition, esteem, and affection throughout the lifespan. Lecture, 6 hours, Laboratory/Clincal, 12 hours, Total 18 hours per week.

NURS 244 MEDICAL SURGICAL NURSING (4 cr.)—Prerequisites NURS 228, NASC 111-112-113. Designed to develop nursing skills in caring for critically ill patients. Emphasis placed on cardiovascular, respiratory, renal and nervous systems. Nursing care of patients with major surgical conditions is also included. Related clinical experience in cooperating health agencies. Lecture 2 hours, Clinical 6 hours, Total 8 hours per week.

NURS 247 OBSTETRICAL NURSING (4 CR.)—Prerequisites NURS 221, NASC 111, 112, 113. Designed to develop nursing skills in caring for mothers in the antepartum, intrapartum and postpartum periods, as well as care of the newborn infant. Related clinical experience in cooperating health agencies. Lecture 2 hours. Clinical 6 hours, Total 8 hours per week.

NURS 248 PEDIATRIC NURSING (4 cr.)—Prerequisites NURS 221, NASC 111, 112, 113. Designed to develop nursing skills in caring for both well and ill children in a variety of settings. Emphasis is placed on theories of growth and development and the family as a unit. Related clinical experience in cooperating health agencies. Lecture 2 hours, Clinical 6 hours, Total 8 hours per week

NURS 249 PSYCHIATRIC NURSING (4 cr.)—Prerequisites NURS 221, NASC 111,112,113. Designed to develop nursing skills in caring for patients with emotional illnesses. The course content explores various treatment models, diagnostic categories and rehabilitative measures. Related clinical experience in cooperating health agencies. Lecture 2 hours, Clinical 6 hours, Total 8 hours per week.

NURS 256 NURSING ORGANIZATION AND MANAGEMENT (8 cr.)—Prerequisites NURS 221, NASC 111,112,113. Focus is on beginning management skills of planning, organizing, directing and controlling as related to nursing. Emphasis is placed oneleadership styles, conflict resolution, formal and informal groups, socialization and legal aspects of nursing. Consideration is also given to management in special situations, including emergencies, disasters, burns, community agencies and intravenous therapy. Lecture 4 hours, Laboratory 12 hours, Total 16 hours per week.

OFFICE SYSTEMS TECHNOLOGY

OFTC 100 OFFICE SKILLS REVIEW (3 cr.)—Designed to provide the educational secretary with the opportunity to review office skills based on individual needs such as typewriting, shorthand, machine transcription, and selected office machines. Lecture 3 hours per week.

OFTC 106 KEYBOARDING FOR INFORMATION PROCESSING (3 cr.)—Develop a keyboarding proficiency with emphasis on speed and accuracy for use with a variety of keyboards found on elctronic text-data entry devices. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 107 TYPEWRITING SKILL BUILDING (3 cr.)—Assistance in correcting weakness in typewriting speed and accuracy skills with emphasis on attaining standards necessary for employment and job promotion. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 111 TYPEWRITING I (3 cr.)—Introduction to the keyboard with emphasis on good techniques, machine mastery, letter formats and styles, tabulation, centering, and reports. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 112 TYPEWRITING II (3 cr.)—Prerequisite OFTC 111 or divisional permission. Skill building through production typing with emphasis on employment competencies. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 113 TYPEWRITING III (3 cr.)—Prerequisite OFTC 112 or divisional permission. Continuation of skill building through production typing with emphasis on employment competencies. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 116 KEYBOARDING FOR INFORMATION PROCESSING (3 cr.)—Develop proficiency with emphasis on speed and accuracy for use with a variety of keyboards found on electronic text-data entry devices. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 121 SHORTHAND I (4 cr.)—Shorthand principles with emphasis on reading and writing skills, associated vaocabulary and grammar. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

OFTC 122 SHORTHAND II (4 cr.)—Reinforcement of shorthand principles, further development of general business vocabularies and English usage, general business dictation. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

OFTC 123 SHORTHAND III (4 cr.)—Prerequisite OFTC 122 or equivalent. Increased speed in general business dictation, introduction of specialized business dictation with emphasis on vocabularies. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

OFTC 124 SHORTHAND IV (4 cr.)—Prerequisite OFTC 123 or equivalent. Speed building in typical business dictation with accuracy in transcription from shorthand notes. Use of dictation tapes for building speeds. Lecture 3 hours, Laboratory 2 hours, Total 5 hours per week.

OFTC 137 OFFICE PROCEDURES (3 cr.)—Prerequisite OFTC 112 or equivalent. General office routine such as work flow, time scheduling, filing, written and oral communications, mail responsibilities, telephone techniques, proofreading, and reprographics. Lecture 3 hours per week.

OFTC 138 SIMULATION IN OFFICE PROCEDURES (3 cr.)—Prerequisite OFTC 112 or divisional permission. Designed to refine and integrate office skills and procedures in a simulated business setting. Lecture 2 hours, Laboratory 2 hous, Total 4 hours per week.

OFTC 139 OFFICE RECORDKEEPING (3 cr.)—Concentration on the types of record keeping duties performed by secretaries including financial, tax, payroll, personnel and inventory. Lecture 3 hours

OFTC 144 PROOFREADING AND EDITING SKILLS (3 cr.)—A comprehensive study of the skills essential to transcription effectiveness; mechanics of spelling, work differentiation, and punctuation; work syllabification, division, and capitalization; and mechanics of sentence structure. Lecture 3 hours per week.

OFTC 145 BEGINNING MACHINE TRANSCRIPTION (3 cr.)—Prerequisite OFTC 112 or divisional permission. An introduction to machine transcription incorporating good listening techniques, grammar, punctuation, and correct business English. Practice in transcribing machine dictation. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 150 PROFESSIONAL DEVELOPMENT (3 cr.)—Designed to develop human awareness for ease in handling business and social situations, resulting in self-confidence in job interviews, placement and continued employment. Lecture 3 hours per week.

OFTC 160 ORIENTATION TO INFORMATION PROCESSING (1 cr.)—An orientation to the vocabulary and concepts of information processing in the office. Includes an introduction to procedures, equipment, personnel, vocabulary, applications and careers. Lecture 1 hour per week.

OFTC 200 INTRODUCTION TO OFFICE AUTOMATION (3 cr.)—Principles, methods, ande techniques involved in office automation technology, with emphasis on equipment, personnel, procedures, erogonomics, and career opportunities. Lecture 3 hours per week.

OFTC 207 EXECUTIVE TYPEWRITING (3 cr.)—Prerequisite OFTC 113 or divisional permission. Development of decision-making skills, speed and accuracy in production typing on various equipment with emphasis on employment standards. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 210 THE ELECTRONIC OFFICE (3 cr.)—Introduction to the microcomputer in today's office, including the selection of software and hardware for business applications, legal, security, ergonomic, and personnel problems associated with the introduction of new technology. Lecture 3 hours per week.

OFTC 216 WORD PROCESSING EQUIPMENT OPERATION (3 cr.)—Prerequisite OFTC 113 or divisional permission. Instruction in use and operation of word processing equipment. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 217 ADVANCED WORD PROCESSING EQUIPMENT OPERATION (3 cr.)—Prerequisite OFTC 216. Advanced applications and use of word processing equipment. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 218 MICROCOMPUTER OFFICE APPLICATIONS I (3 cr.)—Introduction to creation, revision, and reference applications of business documents using microcomputer workstations. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 219 MICROCOMPUTER OFFICE APPLICATIONS II (3 cr.)—Prerequisite OFTC 218. Advanced applications of business document software using microcomputer workstations. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 221 ADVANCED SHORTHAND AND TRANSCRIPTION I (3 cr.)—Prerequisites OFTC 123 or equivalent. Review of principles of shorthand, development of vocabulary and phrases, speed building on general business dictation and transcription skills. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week

OFTC 222 ADVANCED SHORTHAND AND TRANSCRIPTION II (3 cr.)—Prerequisite OFTC 221 or equivalent. Continuation of speed building with emphasis on particular areas of general business, developing special vocabularies, phrases, and shortcuts. Emphasis on spelling, grammar, and other transcription skills. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 223 ADVANCED SHORTHAND TRANSCRIPTION III (3 cr.)—Prerequisite OFTC 222 or equivalent. Speed building in typical business dictation with speed and accuracy in transcription from shorthand notes. Lecture 2 hours, Laboratory 2 hours, Total 4 hours.

OFTC 226 MEDICAL SHORTHAND TRANSCRIPTION (3 cr.)—Prerequisite OFTC 123 or equivalent. 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. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 231 LEGAL SHORTHAND TRANSCRIPTION I (3 cr.)—Prerequisites OFTC 113 and 123. Skill in taking dictation and transcription is developed through concentrated study and practice of high-frequency law terminology. Usage and construction of shorthand outlines for the more common legal terms. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 232 LEGAL SHORTHAND TRANSCRIPTION II (3 cr.)—Prerequisites OFTC 231 or equivalent. Refinement in taking and transcribing material involving legal shorthand forms and phrases. Preparation of client and court documents. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 233 LEGAL SHORTHAND TRANSCRIPTION III (3 cr.)—Prerequisites OFTC 232 or equivalent. Further refinement of skill in taking dictation and transcribing material similar to that used in courts and legal offices. Emphasis on speed and accuracy in production. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 234-235 MACHINE TRANSCRIPTION I—II (3 cr.) (3 cr.)—Prerequisite OFTC 113. Incorporates efficient operation and transcribing equipment, good listening techniques, grammar, punctuation, correct business English usage and business formats. Emphasis on production rates of mailable copy. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 241,242,243 OFFICE SYSTEMS AND PROCEDURES I-II-III (3 cr.) (3 cr.) (3 cr.)—Prerequisite OFTC 113 or divisional permission. Study of work and time management, office communications, processing and presenting business data, and other topics associated with office technology. Lecture 2, Laboratory 2, Total 4 hours per week.

OFTC 248 BUSINESS LETTER WRITING (3 cr.)—The value of applying positive qualities in written business communication through better understanding and human relations. Emphasis upon preparing effective communications with customers, suppliers, employees, the public, and other business contacts. Lecture 3 hours per week.

OFTC 256 SIMULATION IN ADMINISTRATIVE PROCEDURES (3 cr.)—Prerequisite OFTC 245,253, equivalent, or divisional permission. The integration of administrative skills and procedures through model office work experience. A rotation procedure provides an understanding of work flow, evaluation, production standards, supervision and human relations. The administrative assistant's responsibility in solving ofice problems is stressed. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

OFTC 257 PRINCIPLES OF OFFICE AUTOMATION MANAGEMENT (3 cr.)—Introduction and analysis of the supervisor's role in the operation of the information processing cycle and its changing technology. Lecture 3 hours per week.

OFTC 264-265 LEGAL SECRETARIAL PROCEDURES I-II (3 cr.) (3 cr.)—Prerequisite OFTC 241. Instruction in law office procedures, law office filing and record keeping, extension of legal vocabulary, court rules, reference materials, preparation of forms and pleadings. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

OFTC 284-285 MEDICAL SECRETARIAL PROCEDURES I-II (3 cr.) 3 cr.)—Prerequisite OFTC 241. Instruction in medical office procedures, medical office filing and record keeping, extension of medical vocabulary, preparation of medical reports, and special correspondence requirements. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

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. Lecture 3 hours per week.

PHOTOGRAPHY

PHTG 101 PHOTOGRAPHY I (3 cr.)—Principles of photography and fundamental techniques of the camera in relation to the expressive possibilities in visual communication and design. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

PHTG 201-202-203 ADVANCED PHOTOGRAPHY I-II-III (3 cr.) (3 cr.) (3 cr.)—Advanced creative techniques in all areas of photography, stressing skill in lighting, portraiture, and commercial applications of photography. Lecture 1 hour, Laboratory 4 hours, Total 5 hours per week.

PHYSICAL EDUCATION & RECREATION

PHED 111 ARCHERY (1 cr.) Laboratory 2 hours per week.

PHED 113 BOATING (1 cr.) Laboratory 2 hours per week.

PHED 115 ICEW SKATING (1 cr.) Laboratory 2 hours per week.

PHED 118 SNOW SKIING (1 cr.) Laboratory 2 hours per week.

PHED 131 BOWLING (1 cr.) Laboratory 2 hours per week.

PHED 133 GOLF (1 cr.) Laboratory 2 hours per week.

PHED 135 TENNIS (1 cr.) Laboratory 2 hours per week.

PHED 139 INTERMEDIATE TENNIS (1 cr.) Laboratory 2 hours per week.

PHED 153 SWIMMING (1 cr.) Laboratory 2 hours per week.

PHED 170 BASKETBALL (1 cr.) Laboratory 2 hours per week.

PHED 172 SOCCER (1 cr.) Laboratory 2 hours per week.

PHED 173 SOFTBALL (1 cr.) Laboratory 2 hours per week.

PHED 174 VOLLEYBALL (1 cr.) Laboratory 2 hours per week.

PHED 207 BEG. TENNIS (2 cr.) Lecture 1 hour, Laboratory 2 hours, Total 3 hours per week.

PHYSICS

PHYS 101-102-103 INTRODUCTORY PHYSICS I-II-III (4 cr.) (4 cr.) (4 cr.)—A survey of general physics; the fundamentals of mechanics, properties of matter, heat, magnetism, electricity, sound, light, and radiation. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

PHYS 121-122-123 PRINCIPLES OF PHYSICS I-II-III (4 cr.) (4 cr.) (4 cr.)—Prerequisite: three units of high school mathematics including two units of algebra and one unit of geometry. Co-requisite Math 121, Math 161 or equivalent. An introductory course in Physics satisfying the physics requirement for technical students and the science distribution requirement for transfer students other than Physics or Engineering majors. Topics include the fundamental principles of mechanics, heat, electricity and magnetism, wave motion, atomic and nuclear physics. Attention is given to the historical development of physical concepts and theories. Applications of physical principles are included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours, Laboratory 3 hours, Total 6 hours per week.

PHYS 198,199—**See General Usage Courses**

PHYS 213 ENGINEERING PHYSICS III (3 cr.)—Prerequisite MATH 143 or equivalent and PHYS 222. General University Physics designed for students in engineering, physics or mathematics. Includes wave optics, quantum effects, atomic structure and nuclear physics. Except for the lab, PHYS 213 and PHYS 223 cover the same content. Lecture 3 hours per week.

PHYS 221-222-223 GENERAL UNIVERSITY PHYSICS I-II-III (4 cr.) (4 cr.) (4 cr.)—Prerequisite MATH 143 or equivalent. General University Physics is designed for students in engineering, physics or mathematics. Includes mechanics, relativity, electricity and magnetism, electromagnetic waves, optics, quantum mechanics, atomic structure, and nuclear physics. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

PHYS 298,299—**See Genral Usage Courses**

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 appliations of pychology to life and work. Lecture 3 hours per week.

PSYC 128 HUMAN REALTIONS (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. Lecture 3 hours per week.

PSYC 130 CHILD GROWTH AND DEVELOPMENT (3 cr.)—The development of the child concentrating on the physical, intellectual, social and emotional factors in his personality. Recent studies in child development. Provides a background for students in child development. Provides a background for students who intend to become nurses, teachers, or enter other occupations involving continuous work with children. Lecture 3 hours per week.

PSYC 198, 199—**See General Usage Courses**

PSYC 201, 202, 203 GENERAL PSYCHOLOGY I-II-III (3 cr.) (3 cr.) (3 cr.)—The study of human behavior relating experimental data to practical problems; the measurement of ability, sensory and perceptive processes, organic basis of behavior, heredity, maturation, learning and thinking, motivation, emotion, personality and social factore in behavior. Lecture 3 hours per week.

PSYC 204-205 GENERAL PSYCHOLOGY I-II (5 cr.) (4 cr.)—The principles of behavior relating experimental data to practical problems; the measurement of ability, sensory and perceptive processes, organic basis of behavior, heredity, maturation, learning and thinking, motivation, emotion, personality and social factors in behavior. Lecture 4-5 hours per week.

PSYC 208 PSYCHOLOGY OF ABNORMAL BEHAVIOR (3 cr.)—Prerequisite: Instructor's permission. Exploration of the range of human behavior known as abnormal. Emphasis placed on criteria of abnormality, individual and social casuses of psychopathology, major categories for classification of behavior, possibilities for treatment and personal adjustment. Lecture 3 hours per week.

PSYC 231-232-233 HUMAN GROWTH AND DEVELOPMENT I-II-III (3 cr.) (3 cr.) (3 cr.)—The study of 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 Lecture 3 hours per week.

PSYC 260 INTRODUCTION TO BEHAVIOR MODIFICATION (3 cr.)—Survey of the history of behaviorism and the principles and applications of behavior modification. Observation of the training and skills employed in treatment programs based on behavior modification methodology. Lecture 3 hours per week.

PSYC 298,299—**See General Usage Courses**

PUBLIC SERVICE

PBSV 150 INTRODUCTION TO COMMUNITY AND SOCIAL SERVICE (3 cr.)—Consideration of the basic principles, scope, and functions, as well as the practices and current trends in community and social service work. A broad view of the field is presented to provide students with an appreciation of community and social service work as a career. Lecture 3 hours per week.

PBSV 200 SURVEY OF SOCIAL WORK (5 cr.)—Overview of the field of social work; focusing on the development of social work in relationship to modern society. Emphasis on philosophy, professionalism, and relationship to community problems and the social sciences. Lecture 5 hours per week.

PBSV 256 INTERVIEWING SKILLS (3 cr.)—A study and analysis of the technique of interviewing. Includes the significance of representing a governmnent or private agency, human relations, confidentiality, beginning the interview, interchange of information, handling complaints and criticism, ending the interview. Lecture 3 hours per week.

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, Lecture 3 hours per week.

PBSV 259 SOCIAL LEGISLATION (3 cr.)—An examination of current and prospective programs dealing with legislation relevant to community services. Covers Federal, State and municapal programs; interrelationships among governmental agencies; authority and responsibility for administration. Lecture 3 hours per week.

RADIO & TELEVISION

RDTV 51-52-53 ADVANCED SERVICING AND TROUBLESHOOTING TECHNIQUES I-II-III (6 cr.) (6 cr.) (6 cr.)—Prerequisite RDTV 75 or equivalent. Stage-by - stage analysis of Electronic Circuitry used in monochrome and color television receivers. Emphasis will be placed upon developing the student's ability to isolate and repair faults found in electronic equipment using the television receiver as an instructional tool. Lecture 3-3-3 hours, Laboratory 6-6-6 hours, Total 9-9-9 hours per week.

RDTV 74 RADIO/TV ELECTRONICS I (4 cr.)—Prerequisite ELEC 11. A circuits-system concept with emphasis on both vacuum tube and solid state power supplies, voltage amplifiers, including audio frequency, intermediate frequency, radio frequency and video emplifiers, oscillators, convertermixers and detector, basic receiver systems. Lecture 3 hours, Laboratory 3 hours, Total 6 hours.

RDTV 75 RADIO/TV ELECTRONICS II (4 cr.)—Prerequisite RDTV 74. Systems analysis and applications of circuits as applied to receivers, phonographs, recorders and other media in the home entertainment and communications field. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RDTV 80 CET LICENSE PREPARATION (3 cr.)—Prerequisite ELEC 68 and RDTV 52. Provides a broad review of the principles relating to home entertainment electronics that may be encountered on the CET (Certified Electronics Technician) exam. Lecture 2 hours. Laboratory 3 hours, Total 5 hours per week.

RADIOGRAPHY

RADL 110 INTRODUCTION TO RADIOLOGY, PROTECTION, PATIENT CARE (3 cr.)—A brief history of the radiologic profession, the preliminary code of ethic and conduct for radiologic students, and the basic fundamentals of radiation protection. The care and handling of the sick and injured patient in the radiology department. The use of contrast media necessary in the investigation of the internal organs. Lecture 3 hours per week.

RADL 114 RADIOLOGICAL SCIENCE I (4 cr.)—The concepts of radiation, radiography physics, and the fundamentals of electromagnetic radiation, electricity and magnetism. Application of these principles to x-ray transformers and generators. Lecture 3 hours, Laboratory 3 hours. Total 6 hours per week. (To be taught by Physics Dept)

RADL 115 RADIOLOGICAL SCIENCE II (4 cr.)—Prerequisite RADL 114. A continuation of the study of radiological science as it relates to the x-ray machine and its components. X-ray production, emission and x-ray interaction with matter will be investigated. Lecture 3 hours, Laboratory 3 hours. Total 6 hours per week.

RADL 116 RADIOLOGICAL SCIENCE III (4 cr.)—Prerequisite RADL 115. A further investigation of x-ray grids and beam restricting devices. In-depth discussion of radiographic film and processing. Lecture 3 hours, Laboratory 3 hours. Total 6 hours per week.

RADL 120 SPECIALIZED PATIENT CARE PROCEDURE (3 cr.)—Specific nursing procedures associated with routine and emergency conditions encountered in the Radiology Department. Medication preparation and administration will be included.

RADL 124 RADIOGRAPHIC PROCEDURES I (4 cr.)—Positioning the patient's anatomical structures on the radiograph with emphasis on positioning of the extremities, chest, skull, and gross examination of the abdomen. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RADL 125 RADIOGRAPHIC PROCEDURES II (4 cr.)—Prerequisite RADL 124. Emphasis on radiographic procedures such as inner ear studies, pediatric radiology, intra-oral examination and other more complex examinations. Lecture 3 hours, Laboratroy 3 hours, Total 6 hours per week.

RADL 126 RADIOGRAPHIC PROCEDURES III (4 cr.)—Prerequisite RADL 125. The use of special radiographic and surgical procedures employed in the more complicated investigation of internal conditions in the human body. Contrast media, drug reactions, special equipment and techniques will be included. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week.

RADL 141 ELEMENTARY CLINICAL PROCEDURES I (3 cr.)—Designed to develop technical skills in fundamental radiographic procedures. Emphasis is placed on manipulation of general equipment and on patient care. Related clinical experience in cooperating health agencies. Clinic 16 hours per week.

RADL 142 ELEMENTARY CLINICAL PROCEDURES II (3 cr.)—Prerequisite RADL 141. Designed to develop technical skills in fundamental radiographic procedures. Emphasis is placed on osseous studies including skull procedures. Related clinical experience in cooperating health agencies. Clinic 16 hours per week.

RADL 145 ELEMENTARY CLINICAL PROCEDURES (5 cr.)—Designed to advance technical skills in fundamental radiographic procedures. Emphasis is placed on basic contrast media studies, osseus studies, including skull procedures. Related clinical experience in cooperating health agencies. Total 24 hours per week.

RADL 190 COORDINATED PRACTICE IN RADIOLOGY (1-5 cr.)—Supervised practice in selected health agencies coordinated by the College.

RADL 216 RADIOLOGICAL SCIENCE IV (4 cr.)—Prerequisite RADL 116. The study of intensifying screens, and radiographic quality including geometric and subject factors. The theory and operation of special x-ray equipment. Lecture 3 hours, Laboratory 3 hours, Total of 6 hours per week.

RADL 226 CORRELATED RADIOGRAPHIC THEORY (3 cr.)—Prerequisites RADL 250 and RADL 210. Intensive correlation of all major radiologic technology subject areas. Study of interrelationships of areas in biology, physics, principles of exposure, radiologic positioning and special procedures. Lecture 3 hours per week.

RADL 241 ADVANCED CLINICAL PROCEDURES I (5 cr.)—Prerequisite RADL 143. Designed to reinforce technical skills in fundamental radiographic procedures and introduce more intricate contrast media studies. Emphasis is placed on technical proficiency, application of radiation protection, nursing skills and exposure principles. Clinic 24 hours per week.

RADL 242 ADVANCED CLINICAL PROCEDURES II (5 cr.)—Prerequisite RADL 241. Concepts of pediatric radiography, adanced technical procedures and imaging modalities. Emphasis is placed on correlation of all preceding radiographic theory toward total responsibility for the patient in the technical area. Clinic 24 hours per week.

RADL 243 ADVANCED CLINICAL PROCEDURES III (5 cr.)—Prerequisite RADL 242. Introduction to application of radiation therapy, nuclear medicine, ultrasound and radiation physics. Emphasis is placed on perfecting all technical skills and developing an awareness of related areas utilizing ionizing radiation. Clinic 24 hours per week.

RADL 246 RADIOGRAPHIC PATHOLOGY (3 cr.)—A survey of common medical and surgical disorders that may have an effect on the outcome of a finished radiograph. It is also a study of how these disorders present themselves radiographically. Neoplasia, trauma, bacterial and viral diseases, circulatory, degenerative, and congenital diseases will be covered. Illness related to the cardiovascular, respiratory, digestive, biliary, urinary, reproductive, central nervous, and skeletal systems as well as the ductless glands, and the vascular and lymphatic glands will be discussed. Emphasis will be placed on the correlation of the above illnesses with radiographs. Lecture 3 hours per week.

RADL 250 RADIOLOGIC SPECIALTIES (3 cr.)—Introduction to the study and treatment of disease as it relates to Nuclear Medicine, Radiation Oncology, Ultrasound, Imaging Modalities and other innovations in the field of radiology. Special emphasis will be placed on theory, principles of operation and clinical application of these specialties. Lecture 3 hours per week.

RADL 259 RADIOGRAPHIC FILM EVALUATION (3 cr.)—Prerequisite RADL 257. Use of a film evaluation procedure to differentiate between diagnostic quality and poor quality films, recognition of anatomic structures, and crititque of exposure factors. Lecture 3 hours per week.

RADL 276 RADIOLOGY DEPARTMENTAL ADMINISTRATION (1 cr.)—Purpose of this course is to acquaint the radiology student with the planning and operations of the radiology departments. Particular emphasis will be placed on work flow, call scheduling, inter- and intra-departmental communications and budgetary cost centers. Lecture 1 hour per week.

RADL 296 APPLIED RADIOLOGY (16 cr.)—Prerequisites completion of 1st 7 quarters of RADL. Practice of techniques and procedures on actual patients in a clincal setting utilizing energized radiographic equipment. More clinical experience in the radiography specialties. Laboratory 40 hours per week.

RADL 298 SEMINAR AND PROJECT IN RADIOLOGY (1-5 cr.)—Completion of a project or research report related to the student's occupation and a study of approaches to the selection and pursuit of career opportunities in the fields.

SOCIAL SCIENCE

SOSC 100 THE INDIVIDUAL AND HIS WORLD (4 cr.)—A course designed to relate the individual to this total environment. Four course units: (1) the individual and his psychological and social environment; (2) the individual and his political environment; (3) the individual and his economic environment; and (4) the individual and ecology. Students may enroll at the beginning of any unit, none of which are prerequisite to the other. Lecture 4 hours per week.

SOSC 180 PROBLEMS OF MAN IN THE MODERN WORLD (3 cr.)—Survey of contemporary social, psychological, political, and economic problems related to industrialization,urbanization, the role of government, national and international tensions. Lecture 3 hours per week.

SOCIOLOGY

SOCI101-102-103 INTRODUCTORY SOCIOLOGY I-II-III (3 cr.) (3 cr.) (3 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. Lecture 3 hours per week.

SOCI 104-105 INTRODUCTORY SOCIOLOGY I-II (5 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. Lecture 5-4 hours per week.

SOCI 166 SCHOOL AND COMMUNITY RELATIONS (3 cr.)—Techinques of working with parents and communitry groups for the purpose of establishing greater rapport between the school and the community. Emphasis on identifying pressure groups, recognizing problems of cultural and ethnic groups, and the handling of unusual problems involving the school and the community. Lecture 3 hours per week.

SOCI 177 RELIGION AND SOCIETY (3 cr.)—Prerequisite SOCI 101. Designed to familiarize the student with the changing role of religion in contemporary society and to examine issues raised by such changes. Religious value schemes discussed and examined in the context of our modern world. Lecture 3 hours per week.

SOCI 186-187 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 delinquency and crime, mental illness, drug addiction, alcoholism, and sexual behavior; population crisis, race relations, family and community disorganization, poverty, automation, wars and disarmament. Lecture 3 hours per week.

SOCI 198, 199—**See General Usage Courses**

SOCI 236 MARRIAGE AND THE FAMILY (3 cr.)—Prerequisite SOCI 101 or 104. A study of comparative family systems and problems related to marriage and the family. Lecture 3 hours per week.

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. Lecture 3 hours per week.

SOCI 246 CULTURAL ANTHROPOLOGY (3 cr.)—Prerequisite SOCI 101 or 240. 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. Lecture 3 hours per week.

SOCI 250 APPALACHIAN FOLK CULTURE (3 cr.)—Prerequisites SOCI 101, SOCI 246 or instructor's approval. A study of the folk culture of the Appalachian region, with emphasis upon its social history, customs, oral traditions, and material culture. Lecture 3 hours per week.

SPANISH

SPAN 101-102-103 INTRODUCTORY SPANISH I-II-III (4 cr.) (4 cr.) 4 cr.)—The understanding, speaking, reading, and writing of Spanish with emphasis on manipulation of the structure of the language. Lecture 3 hours, Laboratory 3 hours, Total 5 hours per week.

SPAN 199—**See General Usage Courses**

SPAN 201-202-203 INTERMIDIATE SPANISH I-II-III (4 cr.) (4 cr.) (4 cr.)—Prerequisite SPAN 103 or successful completion of two years of high school Spanish and departmental permission. Advanced study in the understanding, speaking, reading, and writing of Spanish. Spanish is used in the classroom. Lecture 3 hours. Laboratory 2 hours, Total 5 hours per week

SPAN 299—**See General Usage Courses**

SPEECH AND DRAMA

SPDR 106 INTRODUCTION TO THE THEATRE I (3 cr.)—The principles of drama; the study of the development of the theatre production; study of selected plays as theatrical presentations. Lecture 2 hours, Laboratory 3 hours, Total 5 hours per week.

SPDR 111 ACTING I (3 cr.)—A study of styles of acting. Lecture 2 hours, Laboratory 2 hours, Total 4 hours per week.

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, light, stage managing, props, promotion, and stage crew. May be repeated for credit. Variable hours.

SPDR 121 THEATER APPRECIATION I (3 cr.)—A study of play production. Consideration of process, style, organization, the written drama, and career opportunities. Lecture 3 hours per week.

SPDR 137 PUBLIC SPEAKING (3 cr.)—Development of skill in speechmaking. Lecture 3 hours per week.

SPDR 141-142-143 VOICE AND DICTION I-II-III (3 cr.) (3 cr.) (3 cr.)—A study through phonetics of the correct speech sounds, drills in pronunciation, enunciation, and voice usage. Lecture 3 hours per week.

SPDR 198—**See General Usage Courses**

SPDR 296, 299—**See General Usage Courses**

WELDING

WELD 120 FUNDAMENTALS OF WELDING (2 cr.)—An introduction to the history of oxyacetylene welding and SMAW, the principles of welding, cutting and nomenclature of the equipment and assembly of units. Welding procedures such as practice of puddling, running flat beads, diffferent types of joints in the flat position. Safety procedures in the use of tools and equipment are stressed. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

WELD 121 OXYACETYLENE WELDING & CUTTING (2 cr.)—Prerequisite WELD 120 or equivalent. A continuation of study of oxyacetylene welding and cutting. Welding procedures such as fusion and nonfusion processes are included in various positions. Lecture 1 hours, Laboratory 3 hours, Total 4 hours per week.

WELD 122 ARC WELDING I (2 cr.)—Prerequisite WELD 121 or equivalent. A study of operation of AC transformers, and DC machines. Studies are made of welding heat, polarities, and electrodes for use in joining various alloys by the SMAW process. Safety procedures are emphasized throughout the course. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

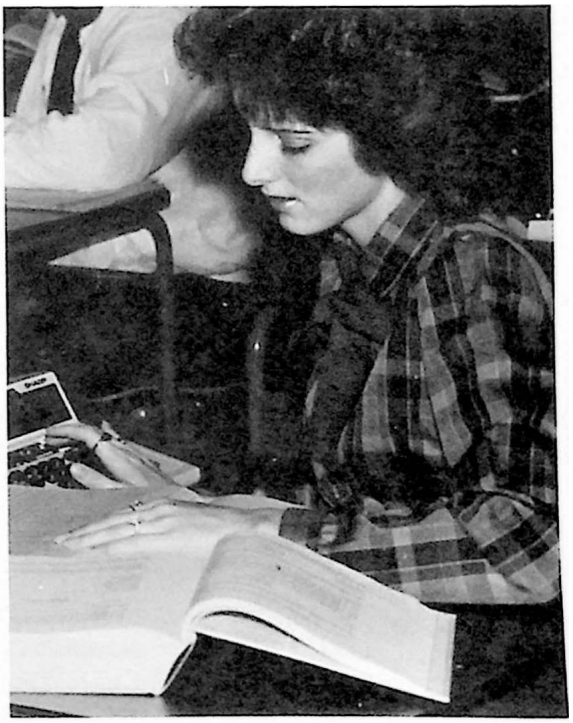
WELD 123 ARC WELDING II (2 cr.)—Prerequisite WELD 122 or equivalent. A continuation of the study of arc welding. Welding procedures such as practices of different types of joints in various positions, intermittent and build-up. Welds are made and tested so that student may detect his weakness. Safety procedures are emphasized throughout the course. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

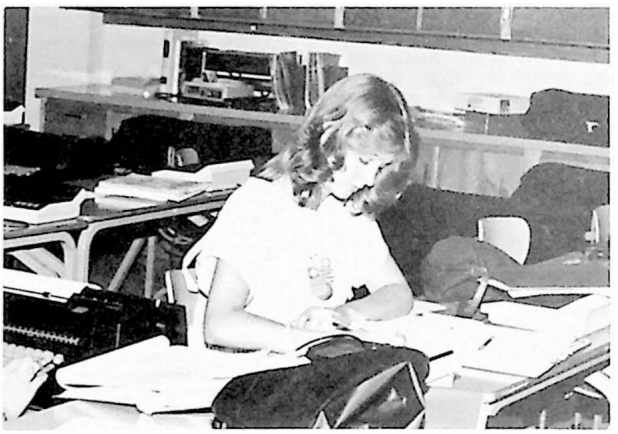
WELD 124 INERT GAS WELDING I (2 cr.)—Prerequisite WELD 123 or equivalent. An introduction to and practical operations in the use of inert gas shield arc welding. A study is made of equipment operation, safety and practice in flat position. GMAW (MIG) principles are thoroughly covered. Lecture 1 hour, Laboratory 3 hours, Total 4 hours per week.

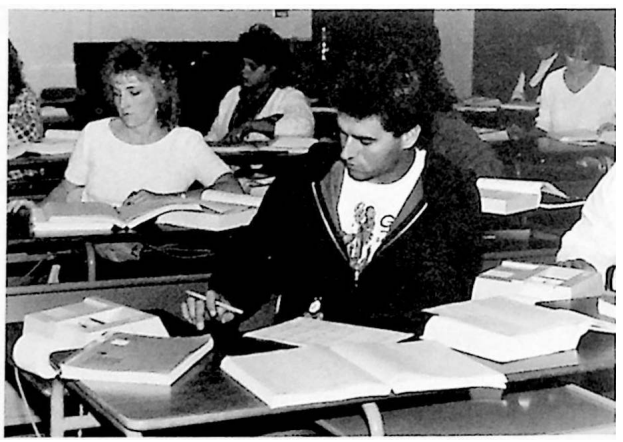
WELD 125 INERT GAS WELDING II (2 cr.)—Prerequisite WELD 124 or equivalent. A continuation of the study of inert gas arc welders with emphasis placed on GTAW (TIG). A study is made of equipment, set-up, safety and operation. Lecture 1 hour. Laboratory 3 hours, Total 4 hours per week.

WELD 136 WELDING METALLURGY (3 cr.)—The study of steel classifications, heat treatment procedure, properties of ferrous and non-ferrous metals. Techniques and practices of testing welding joints. Destructive, nondestructive, visual, magnetic and florescent testing. Lecture 3 hours per week.

WELD 198—**See General Usage Courses**







Part V

STATE AND LOCAL ORGANIZATION

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Mr. Maury L. Strauss, Roanoke City

PRESIDENT

Dr. Charles L. Downs

ADMINISTRATIVE OFFICES

Downs, Charles L. ..... President of the College
B.A.—George Washington University, 1958; M.A.—Florida State University, 1965; Ph.D.—University of Georgia 1969

Archer, J. Andrew ..... Chairman, Division of Science and Mathematics, Professor
A.A.—Reinhardt Junior College, 1959; A.B.—Mercer University, 1961; M.A.—George Peabody College, 1965; Ph.D.—George Peabody College, 1972

Blalock, Dwight E. ..... Dean of Financial and Administrative Services, Associate Professor
B.S.—University of Alabama, 1966; M.S.—Virginia Commonwealth University, 1970

Coleman, Ronald L. ..... Director, Continuing Education, Associate Professor
B.S.—Virginia Commonwealth University, 1965; M.Ed.—University of Virginia, 1969

Emick, Mark Q., Sr. ..... Administrative Assistant to the President/Coordinator of Development, Assistant Professor
A.S.—Virginia Western Community College, 1969; B.S.—Virginia Commonwealth University, 1971; M.A.—Virginia Polytechnic Institute & State University, 1977

Ewing, Larry E. ..... Financial Aid & Veterans Affairs Officer, Professor
A.B.—Franklin & Marshall College, 1965; M.A.—Pennsylvania State University, 1967; Ed.D.—Virginia Polytechnic Institute & State University, 1976

Gentry, Carroll L. ..... Chairman, Division of Business, Professor
B.S.—East Tennessee State University, 1966; M.B.A.—East Tennessee State University, 1967; C.A.G.S.—Virginia Polytechnic Institute & State University, 1978

Hancock, F. Gordon ..... Coordinator, Admissions & Records, Associate Professor
B.S.—Virginia Polytechnic Institute, 1963; M.E.—University of Virginia, 1977

Harrell, Robert A. ..... Dean of Academic & Student Affairs, Associate Professor
B.A.—Memphis State University, 1968; M.Ed.—University of Florida, 1969; Ph.D.—Arizona State University, 1971

Hillman, David L. ..... Coordinator, Library, Professor
B.A.—College of William & Mary, 1969; M.L.S.—University of Maryland, 1972

Houston, Charles A. ..... Director, Institutional Research, Professor
B.S.—University of Tennessee, 1964; M.M.—University of Tennessee, 1969; Ph.D.—Virginia Polytechnic Institute & State University, 1976

Knisely, Ellie F. ..... Coordinator, Learning Laboratory, Associate Professor
B.S.—California, PA State College, 1966; M.A.—West Virginia University, 1967

Mays, Clarence C., Jr. ..... Chairman, Division of Humanities, Professor
B.S.—University of Virginia, 1961; M.Ed.—University of Virginia, 1965; Ed.D.—University of Virginia, 1973

Nickens, Harry C. ..... Director, Industrial Training and Development, Professor
B.S.—Tennessee Tech University, 1966; M.A.—Tennessee Tech University, 1968; Ed.D.—University of Tennessee, 1972

Phelps, Hugh B. ..... Chairman, Division of Engineering/Industrial Technology, Professor
B.M.E.—Clarkson College of Technology, 1950; M.M.E.—Clarkson College of Technology, 1956

Shirley, W. T. ..... Chairman, Division of Social Sciences & Public Service Technology, Associate Professor
B.A.—Furman University, 1948; M.A.—University of North Carolina, 1950

Singer, Madelyn H. ..... Chairman, Division of Health Technology, Professor
B.A.—Brooklyn College, 1942; M.A.—Columbia University, 1946

Suggs, Del ..... Coordinator of Counseling Services, Associate Professor
B.A.—Wake Forest University, 1959; M.Div.—Southeastern Baptist Seminary, 1968; Th.M. Southeastern Baptist Seminary, 1973; Ed.D.—University of North Carolina, Greensboro, 1978

Faculty

ABBATELLO, Donna J. ..... Assistant Professor, Secretarial Science
B.S.—Bluefield State College, 1968; M.A.—West Virginia College of Graduate Studies, 1977

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B.S.—Virginia Polytechnic Institute & State University, 1972; M.A.—Virginia Polytechnic Institute & State University, 1976

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B. Arch.—University of Virginia, 1968

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A.A.S.—Roanoke Technical Institute, 1965; B.S.—Virginia Polytechnic Institute & State University, 1971; M.S.—Virginia Polytechnic Institute & State University, 1975

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A.B.—Grove City College, 1947; M.S.—Radford College, 1978

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BASS, James Louis, III ..... Assistant Professor, Biology
B.S.—University of Tennessee, 1960; M.A.—Vanderbilt University, 1977

BENSON, G. Don ..... Professor, Physics
B.S.—Texas Western College, 1964; Ph.D.—Vanderbilt University, 1977

BIRMINGHAM, Michael G. ..... Associate Professor, Business Management
B.A.—St. Bonaventure University, 1967; M.P.A.—University of Missouri, 1969

BLEASE, Alfred D. ..... Associate Professor, Physics
B.S.—Brown University, 1961; M.S.—University of Maine, 1965

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A.S.—Boston University, 1960; B.S.—Northeastern University, 1968; M.S.—Virginia Polytechnic Institute & State University, 1974

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B.S.—Madison College, 1960; M.Ed.—Virginia Polytechnic Institute, 1969; Ed.D.—Virginia Polytechnic Institute, 1977

BRANSCOM, Sallie D. ..... Associate Professor, Accounting
B.S.—Radford College, 1957; M.Ed.—University of Virginia, 1962

BROWN, Martha B. ..... Associate Professor, Secretarial Science
B.S.S.A.—Women's College, University of North Carolina, 1957; M.A.—East Carolina University, 1961

BRUSATI, John F. ..... Associate Professor, Sociology
A.B.—Southwestern College, 1962; B.D.—Duke University, 1966; M.S.—Radford College, 1971

CALLIS, Tracy G. ..... Associate Professor, Data Processing
B.S.—Virginia Polytechnic Institute, 1963; M.S.Ed.—Virginia Polytechnic Institute & State University, 1975; C.A.G.S.—Virginia Polytechnic Institute & State University, 1977

CAPPS, John S. ..... Instructor, English
B.A.—Virginia Polytechnic Institute & State University, 1974; M.A.—Virginia Polytechnic Institute & State University, 1977

CARTER, Douglas, Jr. ..... Professor, Speech & Drama
B.A.—University of Arizona, 1966; M.A.—University of Arizona, 1969; Ph.D.—Ohio University, 1983

CHENG, Fa-Hwa ..... Professor, Civil Engineering Technology
B.S.—National Taiwan University, 1961; M.S.—Virginia Polytechnic Institute & State University, 1966; Ph.D.—Virginia Polytechnic Institute & State University, 1971

CLOWER, Carol ..... Assistant Professor, Counselor
B.S.—Virginia Polytechnic Institute & State University, 1976; M.A.—Radford College, 1978; M.S.—Radford College, 1978

COOK, Patricia F. ..... Instructor, Dental Assistant
Certificate—Virginia Western Community College, 1971

CRAIG, Betty C. ..... Assistant Professor, English
A.B.—Hollins College, 1946; M.A.L.S.—Hollins College, 1971

CRAWFORD, Robert J. ..... Assistant Professor, Electronic Servicing
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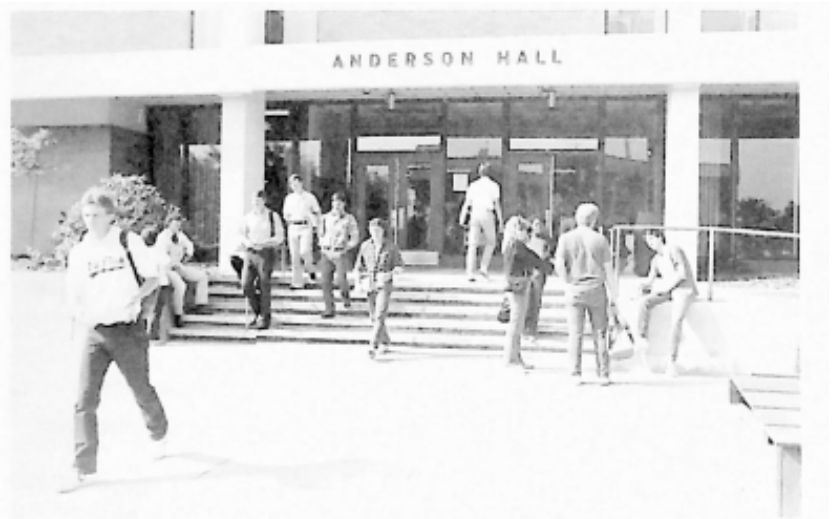

Part VI

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Cancer Center of Southwest Virginia

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Operations Manager
WXLK-K92

Ed Garcia
Supervisor of Instructional
Technology and Information
Center Services
Roanoke City School Services
Roanoke City School System

Carl Guffey
Director of Operations
WDBJ-TV

Jane W. James
Supervisor of Media Services
Roanoke County School System

Gary Kazanjian
Video Services Coordinator
Appalachian Power Company

Bernard Langheim
Roanoke Valley Cablevision

Randall W. Odil
General Manager
WSLS-TV

Robert Pafford
Chief of Medical Media
Veterans Administration Medical Center

Ercil Rexrode, Jr.
Manager
WBRA-TV

SAVINGS & LOAN ASSOCIATION EDUCATION ADVISORY COMMITTEE

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Branch Manager and Assistant Vice President
Virginia First Savings & Loan Association

Donna Manning
Virginia Federal Savings and Loan Association

Linda H. Markham
Branch Manager and Assistant Vice President
Virginia Federal Savings & Loan Association

Roswitha Nichols
Savings Counselor
First Federal Savings & Loan Association

Bill Ross
Branch Coordinator & Vice President
First Federal Savings & Loan Association

Bob Watson
Southwest Virginia Savings & Loan Association

VOCATIONAL EDUCATION ADVISORY COMMITTEE

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Roanoke City Horticulturist

Betty Whitley
NS Railway Company

David Mitchell
The Macke Company

John Will Creasy
Associated Advertising

James M. Martin
Art Director
Double Envelope Corporation

J. E. Blackwell, Jr.
Employer Relations Advisor
Apalachian Power Company

David Ware
Operations Supervisor
AT&T

John Larew
Executive Vice President
Appalachian Power Company

Becky Hale
Coordinator
Mental Health Association Program
Veterans Hospital

Harry T. Haskins, Jr.
Chief of Police

Billy Ferguson
Chief of Radiology
Community Hospital of Roanoke Valley

Sharon Ernest, R.D.H.

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Carroll Gentry

ENGINEERING DIVISION
Hugh B. Phelps

HEALTH TECHNOLOGY DIVISION
Madelyn Singer

HUMANITIES DIVISION
Clarence Mays

SCIENCE & MATH DIVISION
Andrew Archer

SOCIAL SCIENCE DIVISION
W. T. Shirley

Part VII

INDEX

Place
Stamp
Here

Virginia Western Community College
Office of Admissions
P.O. Box 14065
Roanoke, VA 24038

Place
Stamp
Here

Virginia Western Community College
Office of Admissions
P.O. Box 14065
Roanoke, VA 24038

Name _____

Address _____

City _____

State _____

Zip Code _____

Telephone _____
Home Business

Area(s) of Academic interest _____

Please send the following information:

____ Application Forms
____ Financial Aid Brochure
____ Schedule of Classes
____ I am interested in an appointment with a college counselor.

Name _____

Address _____

City _____

State _____

Zip Code _____

Telephone _____
Home Business

Area(s) of Academic interest _____

Please send the following information:

____ Application Forms
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Part VII

INFORMATION DIRECTORY

VIRGINIA WESTERN COMMUNITY COLLEGE
General Address:
3095 Colonial Avenue, S.W.
P.O. Box 14065
Roanoke, Virginia 24038

Specific Inquiries:

Admissions
About applications and admission to Virginia Western Community College
Telephone: 982-7231

Business Office
About Student Accounts
Telephone: 982-7201

Business Science Division
About programs of study
Telephone: 982-7272

Career and Placement Services
About career counseling services
Telephone: 982-7298

Continuing Education Office
About courses
Telephone: 982-7281

Counseling Services
About testing, counseling, and program selection
Telephone: 982-7237

Engineering/Industrial Technology division
About programs of Study
Telephone: 982-7275

Financial Aid Office
About applications and Financial Aid Handbook
Telephone: 982-7331

Health Technology Division
About programs of study
Telephone: 982-7307

Humanities Division
About programs of study
Telephone: 982-7271

Mathematics & Science Division
About programs of study
Telephone: 982-7273

Public Information Office
For general information
Telephone: 982-7371

Social Science & Public Service Technology Division
About programs of study
Telephone: 982-7276

Special Services
About Student Special Needs
Telephone: 982-7286

Veterans' Affairs Office
About applications for program of education and training
Telephone: 982-7395