Virginia Western
COMMUNITY COLLEGE

GENERAL CATALOG 1990-91

Accreditation

Virginia Western Community College has been fully accredited by the Southern Association of Colleges and Schools since 1969.

Occupational/technical education programs of the college have received accreditation by

The National League for Nursing,
The Joint Review Committee on Education in Radiologic Technology,
The American Dental Association Commission on Dental Accreditation, and by
The Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Photography by Andres Alonso

Academic Calendar for 1990-91

1990

MAY

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Summer Term 1990

11-Week Session

Classes Begin	May 17
Last Day to Register/Add a Class	May 23
Last Day to Drop and Receive a Refund	May 25
Last Day to Apply for Graduation	June 1
Student/Faculty Break—Grade Reporting Period	June 21-26
Last Day to Withdraw Without Grade Penalty	July 3
Independence Day Holiday	July 4
Classes End	Aug. 8
Commencement Ceremony	Aug. 16

10-Week Session

Classes Begin	May 17
Last Day to Register/Add a Class	May 23
Last Day to Drop and Receive a Refund	May 25
Last Day to Apply for Graduation This Term	June 1
Student/Faculty Break—Grade Reporting Period	June 21-26
Last Day to Withdraw Without Grade Penalty	June 27
Independence Day Holiday	July 4
Classes End	Aug. 1
Commencement Ceremony	Aug. 16

First 5 Week Session

Classes Begin	May 17
Last Day to Add or Drop and Receive a Refund	May 21
Last Day to Apply for Graduation	June 1
Last Day to Withdraw Without Grade Penalty	June 6
Classes End	June 20

Second 5 Week Session

Classes Begin	June 27
Last Day to Add or Drop and Receive a Refund	June 29
Independence Day Holiday	July 4
Last Day to Withdraw Without Grade Penalty	July 17
Classes End	Aug. 1
Commencement Ceremony	Aug. 16

Fall Semester 1990

16-Week Session

Classes Begin	Aug. 23
Last Day to Register/Add a Class*	Aug. 29
Labor Day Holiday	Sept. 3
Last Day to Drop and Receive Refund	Sept. 5
Last Day to Apply for Graduation This Term	Sept. 28
Last Day to Withdraw Without Grade Penalty	Oct. 31
Thanksgiving Holidays	Nov. 22 & 23
Classes End	Dec. 12
Exams	Dec. 13-19

First 8-Week Session

Classes Begin	Aug. 23
Last Day to Register/Add a Class	Aug. 29

1991

JANUARY

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Last Day to Withdraw and Receive Refund ..... Aug. 30
Labor Day Holiday ..... Sept. 3
Last Day to Withdraw Without Grade Penalty ..... Sept. 26
Last Day to Apply for Graduation This Term ..... Sept. 28
Classes End ..... Oct. 18
Final Examinations ..... Last Class Meeting

Second 8-Week Session
Classes Begin ..... Oct. 19
Last Day to Register/Add a Class ..... Oct. 25
Last Day to Withdraw and Receive Refund ..... Oct. 26
Last Day to Withdraw Without Grade Penalty ..... Nov. 28
Thanksgiving Holidays ..... Nov. 22 & 23
Classes End ..... Dec. 12
Exams ..... Dec. 13-19

Spring Semester 1991

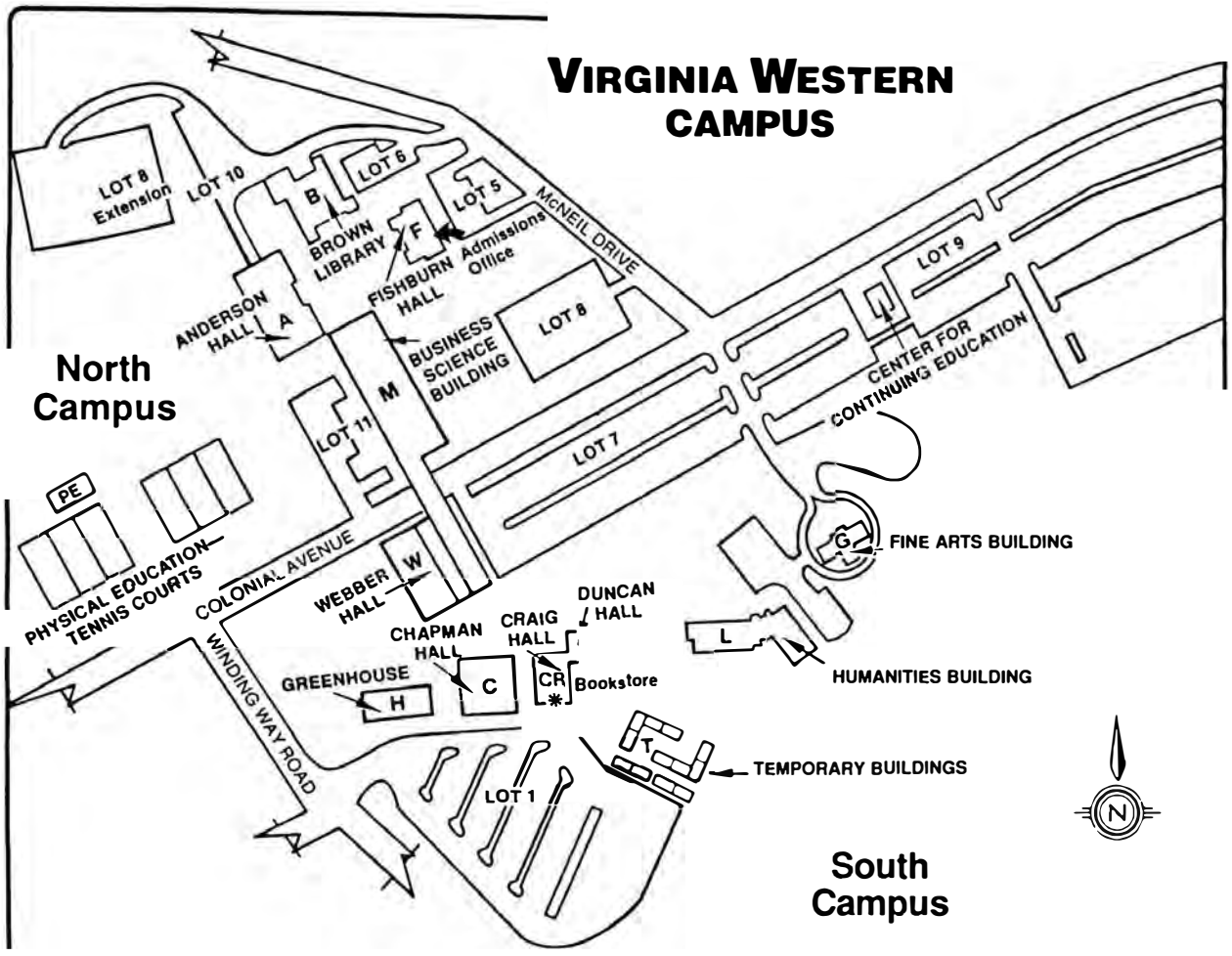
16-Week Session
Classes Begin ..... Jan. 7
Last Day to Register/Add a Class* ..... Jan. 11
Last Day to Withdraw and Receive Refund ..... Jan. 18
Faculty In-Service Days ..... Jan. 28-29
Last Day to Apply for Graduation ..... Feb. 1
Faculty In-Service Days ..... Feb. 20-21
Last Day to Withdraw Without Grade Penalty ..... Mar. 8
Spring Break ..... Mar. 11-15
Classes End ..... May 2
Final Examinations ..... May 3-9
Commencement Ceremony ..... May 14

First 8 Week Session
Classes Begin ..... Jan. 7
Last Day to Register/Add a Class ..... Jan. 11
Last Day to Withdraw and Receive Refund ..... Jan. 11
Faculty In-Service Days ..... Jan. 28-29
Last Day to Apply for Graduation This Term ..... Feb. 1
Last Day to Withdraw without Grade Penalty ..... Feb. 8
Faculty In-Service Days ..... Feb. 20-21
Classes End ..... Mar. 8
Final Examinations ..... Last Class Meeting

Second 8 Week Session
Classes Begin ..... Mar. 18
Last Day to Register/Add a Class ..... Mar. 22
Last Day to Withdraw and Receive Refund ..... Mar. 22
Spring Break ..... Mar. 11-15
Last Day to Withdraw Without Grade Penalty ..... Apr. 19
Classes End ..... May 2
Final Examinations ..... May 3-9
Commencement Ceremony ..... May 14

*NOTE: Night Classes—may register or add so long as class has not met in the second week.

VIRGINIA WESTERN CAMPUS



BUILDINGS:

06	A	ANDERSON HALL
08	B	BROWN LIBRARY
05	C	CHAPMAN HALL
01	D	DUNCAN HALL
03	CR	CRAIG HALL
07	F	FISHBURN HALL
04	G	FINE ARTS BUILDING
21	H	GREENHOUSE
24	L	HUMANITIES BUILDING
22	M	BUSINESS SCIENCE BUILDING
15	PE	PHYSICAL EDUCATION
14	T	TEMPORARY BUILDINGS
20	W	WEBBER HALL
	*	BOOKSTORE

PARKING LOTS:

1	STUDENTS & FACULTY
5	VISITORS & REGISTRATION
6	ASSIGNED
7	STUDENTS, FACULTY, & VISITORS
8	FACULTY, STAFF, & HANDICAPPED
8	(Extension) FACULTY, STAFF, & STUDENTS
9	STUDENTS
10	FACULTY & STAFF ONLY
11	HANDICAPPED & SERVICE

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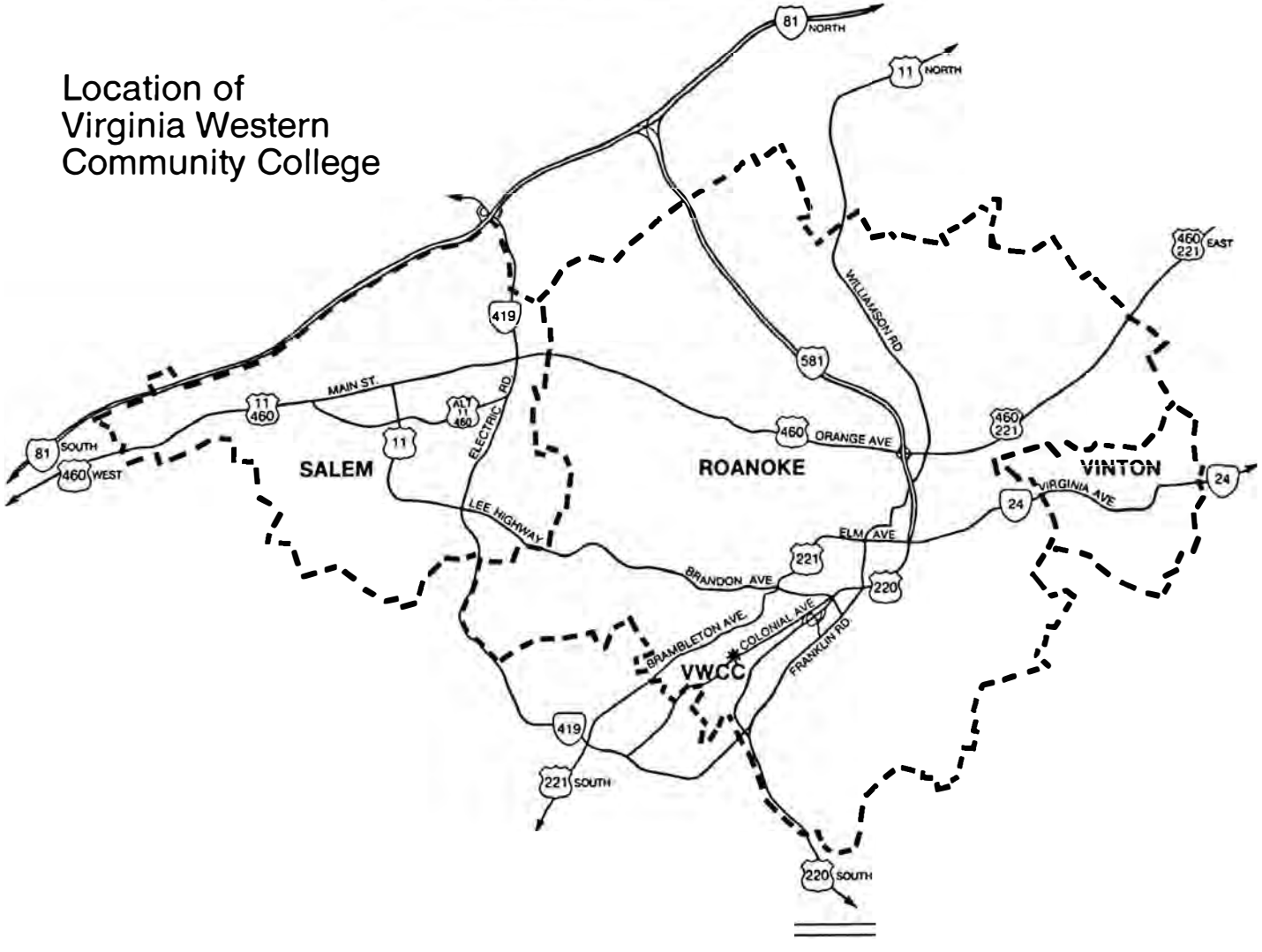
Location of
Virginia Western
Community College



Contents

PART I

General Information

The College

Virginia Western Community College is a two-year public institution of higher education operating under a state-wide system of community colleges. The College operates under the policies established by the State Board for Community Colleges and the Virginia Western Community College Board. The College is financed primarily by state funds; however, local governments also provide support.

The service region of the College includes Roanoke, Salem, Roanoke County, Craig County, southern Botetourt County, and northern Franklin County. Day and evening classes are provided on a 70-acre campus located in southwest Roanoke. Classes are also offered at off-campus locations in the area. The College was established in 1966 and has grown from an initial enrollment of 1,352 students to its current enrollment of over 7,000.

Mission

Virginia Western Community College is dedicated to the belief that all people should have an equal opportunity to develop and expand their skills and knowledge for the betterment of themselves and their community. The College strives to provide quality programs that are affordable and accessible to area residents. A wide range of educational opportunities and a complement of student support services are provided to serve the diverse and dynamic needs of the region, including the employment needs of area business, industry, professions, and government.

Role and Scope

The College offers academic programs or program options ranging from one semester to two years in length. Academic programs and courses of study comprise the following general areas:

UNIVERSITY PARALLEL/COLLEGE TRANSFER EDUCATION—programs designed to prepare students for transfer to baccalaureate degree programs at four-year colleges and universities. Associate degrees in arts and sciences are offered. See page 29 of catalog.

TECHNICAL-OCCUPATIONAL EDUCATION—programs designed to meet the demand for technicians, semi-professional workers, and skilled craftsmen for employment in business, industry, the health field, and public service professions. Included are two-year associate degree programs, diploma programs, certificate programs, and short, specialized career studies programs. See pages 29 and 30 of catalog.

GENERAL EDUCATION—courses that encompass the broad foundations of higher education, including the humanities, social sciences, natural sciences, and mathematics. The two purposes of general education courses are to provide knowledge and academic skills for individual enrichment and responsible citizenship, and to provide a foundation for further and more specialized study.

CONTINUING ADULT EDUCATION—courses and programs that enable citizens in the region to continue their learning experiences. These opportunities include both degree credit and nondegree credit courses during the day or evening to facilitate lifelong learning for personal satisfaction and career development.

COOPERATIVE EDUCATION—courses designed to enrich the student's career preparation by integrating classroom and laboratory study with carefully planned and supervised work experience.

DEVELOPMENTAL EDUCATION—courses designed to strengthen proficiency in communication and computation skills. These courses provide preparation for students who lack the academic background or prerequisite competencies necessary for success in curricula of study.

REGIONAL AND COMMUNITY SERVICE—the facilities of the College may be available to meet the needs of the community for public meetings, cultural events, workshops, lectures, conferences, seminars, noncredit programs, and other special community projects in the public interest.

SPECIAL TRAINING PROGRAMS—where specific job opportunities are available, special training may be provided. Such programs are coordinated with Virginia's economic development efforts and with the needs of prospective or established employers.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PART II

Admissions

Eligibility

Any person who has a high school diploma, a GED, or who is 18 years of age and can benefit from classes at the college may be admitted.

High school students in the 10th, 11th, or 12th grade may attend with approval of their high school principal.

Persons not yet 18 who are not attending secondary schools may attend with approval of the school superintendent of the city or county of the applicant's residence.

Others with special circumstances may attend with approval of the Virginia Western Community College Admissions Committee.

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

Application Procedure

All applicants must submit an "Application for Admission" form. Applicants who graduated from high school within the previous year must provide high school transcripts.

Applicants may be required to complete an on-campus academic assessment prior to enrollment in certain classes or programs. The assessment is normally administered during the registration period and is used to assist in placing students at the appropriate level of instruction.

Applicants who wish to enter a program of study (curriculum) must provide official transcripts from all high schools, colleges, and universities attended and may be required to meet with a college counselor prior to admission to: (a) discuss educational interests, (b) determine needed academic assessments, (c) plan admission to a specific curriculum, and (d) examine other reasonable standards to insure that applicants possess the potential to meet curriculum requirements.

Applicants who do not meet academic requirements for a specific course or curriculum may be rquired to complete a developmental course or program before acceptance to the desired curriculum.

Applicants seeking admission to one of the Health Technology programs (Nursing, Radiography, Dental Hygiene) must meet additional specific entrance requirements. Applicants interested in one of these programs should meet with a college counselor and complete specific requests for entry into the curriculum.

Admissions Policy

The following applicants are eligible for admission to Virginia Western Community College:

I. Applicants who have never attended a college:

Applicants who are 18, or who have a GED or have graduated from high school will be accepted. Others may be accepted under the following conditions:

A. If they are enrolled in the 10th, 11th, or 12th grade and have permission of the principal to take a course(s);

B. If they have dropped out of school and have the approval of the school system under whose jurisdiction they reside;

C. If they are enrolled in school and have not yet reached the 10th grade. These applicants may be accepted by action of the Admissions Committee to take a course under special conditions after it is determined that the student can benefit from attending the college.

II. Applicants who have previously attended college:

Applicants may be admitted if they fall into one of the following categories:

A. Academically in good standing;

B. On academic probation. These applicants may be admitted with academic restrictions.

C. On academic suspension. These applicants are eligible after one semester has passed. They may be admitted after meeting the following conditions:

1. Upon completion of appropriate placement tests;
2. Upon recommendation of a Virginia Western Community College counselor;
3. With approval of the Admissions

Committee or the Coordinator of Admissions and Records.

Exceptions to the waiting period of one semester may be made if one of the following conditions exists:

1. Students wishing to enter a different curriculum and have at least a 2.0 on the courses applicable to the new curriculum;
2. Students who were suspended for low cumulative GPA and have an acceptable curriculum GPA;
3. Noncurricular students wishing to take courses that are primarily job training;
4. Students who feel they have mitigating circumstances should direct a letter to the Admissions Committee asking for acceptance. The letter must address the following:
   a. The course or courses desired;
   b. The goal or curriculum which will be pursued;
   c. A statement explaining the academic difficulty that led to suspension;
   d. An explanation of what has been done to enhance the student's chance for success.

D. On academic dismissal, those applicants who have been out of school less than three years may appeal to the Admissions Committee for admission if they feel mitigating circumstances warrant consideration. Direct a letter to the Admissions Committee containing the following:
   1. The course or courses the applicant wishes to take;
   2. The curriculum the applicant wishes to enter and the goal concerning education;
   3. A statement on why the applicant had academic difficulty that led to dismissal;
   4. A strong case on behalf of the applicant as to why success is expected in the third or more attempt at college level education.

   These applicants may be requested to provide additional information on an individual basis.

E. Students who have been on academic dismissal for longer than three years may be admitted upon completion of an "Application for Admission" form.

NOTE: In all cases, Virginia Western Community College reserves the right to deny admission to anyone who the college determines is unable to benefit from attendance at the institution.

Resident Requirements

For purposes of in-state tuition, a Virginia resident is defined by state law as one who has lived in Virginia, with the intent to remain a Virginian, for a period of at least one year prior to the beginning of the term for which he is enrolling. The burden of proving eligibility for in-state tuition rates rests with the applicant. All applicants to the College who claim entitlement to Virginia in-state tuition rates must complete the domiciliary items included with the application form and provide whatever documentation may be deemed necessary.

The appeals process for applicants determined ineligible for in-state tuition rates is as follows:

1. Initial determination will be made by a member of the admissions staff.
2. Intermediate review will be conducted, upon appeal, by the Coordinator of Admissions and Records.
3. Final administrative review will be made by an appeals committee.

Additional information is available from 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. An I-20 will not be issued less than 60 days from the beginning of the next semester. Students must also present proof of health insurance before registering for classes.

Written English proficiency may be demonstrated by submitting acceptable scores on the "Tests 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 that 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.

Current policies of the U.S. Immigration Department state that international students must prove that financial responsibility will be met. All other immigration policies must also be satisfied.

Admission of Senior Citizens

Senior citizens must apply to the college and be admitted as all other students. Under the Virginia Senior Citizens Higher Education Act of 1974, amended in 1976, 1977, 1982, and 1988, anyone who is 60 years of age or older, who is a legal domiciliary of Virginia, and whose taxable income does not exceed $10,000 is eligible to enroll in credit courses for academic credit at the college.

Senior citizens may register for and audit courses offered for academic credit, or for courses not offered for academic credit.

Senior citizens pay no tuition or fees except fees established for such things as course materials and laboratory fees.

Senior citizens registering under the provisions of this act may register only after tuition-paying students are accommodated except when the senior citizen has completed 75 percent of the requirements for a degree.

Students Transferring From Other Colleges

Students transferring from other colleges to Virginia Western Community College must complete an application.

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

Transfer students who are ineligible to return to a college previously attended generally will not be eligible to enroll at Virginia Western until one semester has elapsed. 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 a C when students transfer from other colleges. Transfer students may be advised to repeat courses if it is clearly to their advantage to do so in order to make satisfactory progress in their curriculum.

In determining transfer credit, course work applicable to the curriculum at Virginia Western Community College will be accepted if the work was taken at an institution accredited by one of the regional accrediting associations. All other credit for course work will be evaluated on an individual basis.

Advanced Placement

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 semesters.

The College participates in the nationally recognized Advanced Placement Program (AP) and in the College Level Examination Program (CLEP). Locally prepared examinations are available for some courses offered through the College. Normally, local examinations are not given when national exams are available.

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 appropriate procedures.

Dual Enrollment for High School Students

High school juniors and seniors who are 16 years of age or older may be allowed to meet some of their high school graduation requirements while simultaneously earning college credit. Officials from both the high school and Virginia Western Community College must ensure that students registered under this arrangement are qualified to

benefit from the work and to be successful. Students must be recommended by the high school and must meet the admissions requirements established by the college. High school students interested in earning dual enrollment credit should first contact their principal. Further information may be obtained from the Coordinator of Admissions and Records.

Classification of Students

All students are classified according to the following categories:

CURRICULAR STUDENT—A student working toward completion of an associate degree, diploma, certificate, or career studies program.

NONCURRICULAR STUDENT—(1) A student auditing course(s) for no credit; (2) High school students who, with the permission of their school principal, are currently enrolled in a college course; or (3) A student not enrolled in an associate degree, diploma, or certificate program who may be taking a course(s) for credit.

FULL-TIME STUDENT—A student is considered a full-time student if carrying 12 or more course credits. NOTE: A student wishing to complete a degree on schedule should take 16-18 credits per semester.

PART-TIME STUDENT—A student is considered part-time if carrying fewer than 12 course credits.

FRESHMAN—A student is classified as a freshman until 30 course credits are completed in a designated curriculum.

SOPHOMORE—A student is considered a sophomore after 30 or more course credits are completed. Transfer credits are included providing they meet requirements of the student's curriculum.

Student Permanent Record

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

1. High school transcripts
2. Other college transcripts and evaluations
3. Correspondence with student
4. Grade change forms
5. Requests for transcripts

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 a student 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 written permission from the student.

Records may be destroyed after a student has not been in attendance for three years. 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 corrective action as soon as possible. A record becomes permanent after three years.

Students may obtain copies of information from their files by paying a copying charge of $.25 per page within a minimum of $1 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. Semesters in attendance

PART III

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 semester. (Exception: 18 credits plus one credit for orientation does not require approval.)

The 1989-90 academic year tuition set by the State Board for Community Colleges is:

In-state .....$26.60 per credit

Out-of-state .....$132 per credit

Payment of tuition enables the student to use the Bookstore and other facilities of the College.

NOTE: 1990-91 Tuition is subject to change by action of the State Board for Community Colleges.

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 $2 per student per semester will be charged. This fee is payable with tuition and is nonrefundable.

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 semester 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.

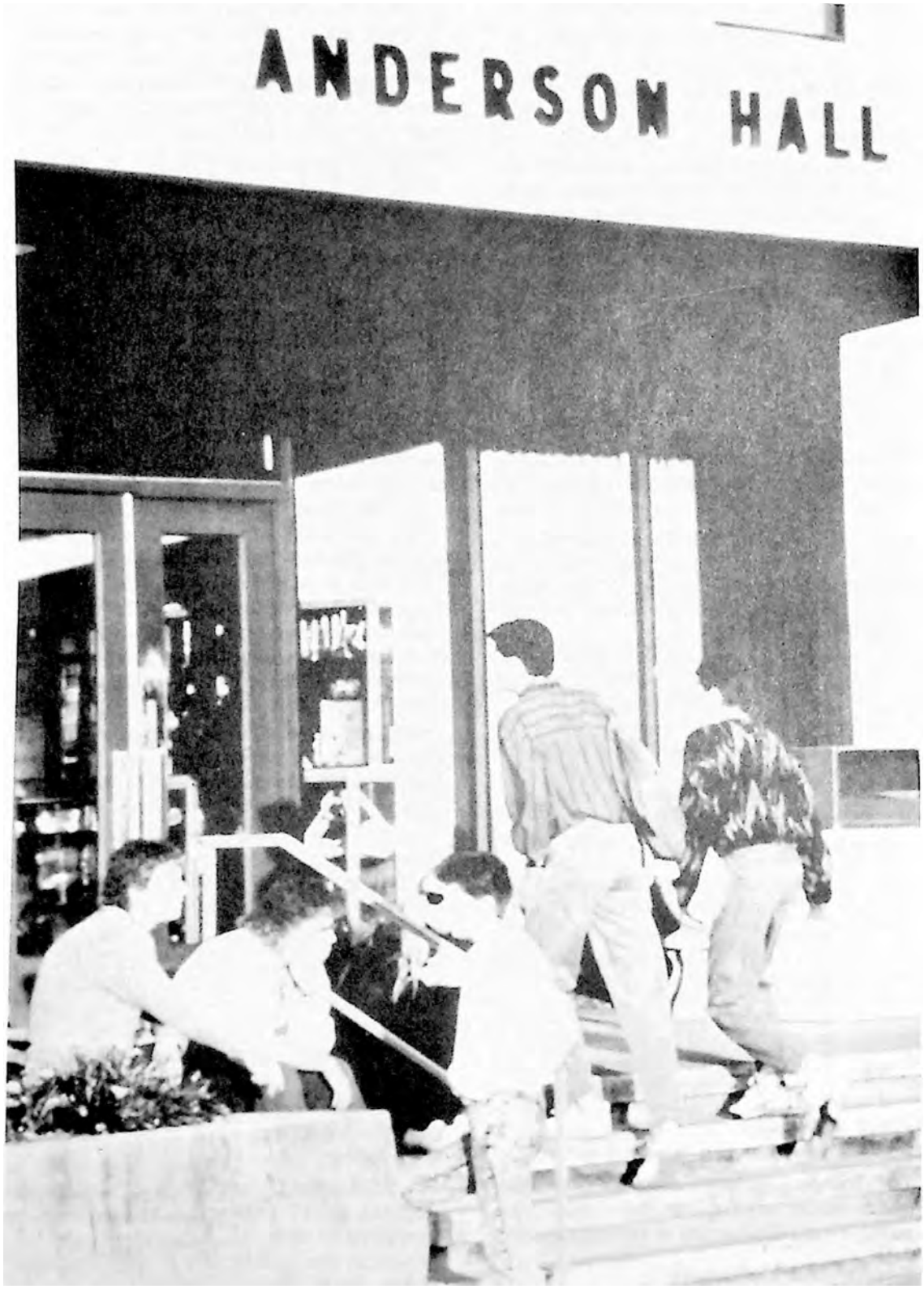
Refunds will be made only if the course is cancelled, or a student drops the course (drop slip must be presented), or the incorrect book is purchased. All books with misprints, pages missing, or other publishing mistakes may be exchanged at any time for the same book by presenting the cash register receipt.

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. If suspended, the student will not be allowed to register in any succeeding semester until all current debts owed to the College have been satisfied.

Students who damage or lose school property will be expected to pay charges for such losses.

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.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PART IV

Student Financial Aid

How and When to Apply

Various forms of financial aid from both public and private funds are available to students, including grants, scholarships, loans, and work-study. Any student or potential student who wishes to apply for financial aid must submit a completed **Application for Federal Student Aid** to:

Federal Student Aid Programs
P.O. Box 4120
Iowa City, Iowa 52244

This form may be obtained at the Office of Financial Aid or from a high school counselor. Students transferring from another college to Virginia Western must also have a **financial aid transcript** forwarded by the Financial Aid Office of each college previously attended.

Since applications are processed in the order in which they are received, and some forms of financial aid are available on a limited basis only, students are encouraged to apply as early as possible. The recommended deadline in applying for fall semester aid is **June 30**.

NOTE: A new financial aid application must be submitted for each academic year of enrollment.

Eligibility for Financial Aid

Local sponsorship programs are available to qualified students based on academic ability and may be awarded without repayment or work obligations. Scholarships normally are provided in the form of tuition coverage. Since financial need is also a consideration in the awarding of some scholarships, all candidates should submit an **Application for Federal Student Aid** or **Financial Aid Form.**

Federal and state-funded grant, loan, and work-study programs are available on the basis of documented financial need to cover both direct expenses, such as tuition and books, and indirect expenses, such as transportation and room and board. The following eligibility criteria are required for federally funded grant and loan programs:

1. Documented financial need (Note: Financial records including state and federal income tax returns may be required.)
2. Documented citizenship or permanent residence status
3. No outstanding obligations on financial aid previously received at any educational institution or defaults on educational loans

Students must continue to satisfy the above criteria and maintain satisfactory academic progress to retain financial aid eligibility. Satisfactory progress is defined primarily as a passing grade (A, B, C, D, or P) in at least two thirds of the credit load each semester.

A student deemed ineligible for continuation of financial aid may request reinstatement in view of extenuating circumstances by submitting a written appeal to the Financial Aid Committee.

Types of Financial Aid

PELL GRANT—a federal aid program based on financial need. A recipient must be enrolled basis in an eligible program of study and cannot have received previously a baccalaureate degree. Awards are for both direct and indirect educational expenses. Because Pell Grants often provide a foundation for other forms of aid, students seeking any type of financial aid should apply for Pell.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT (SEOG)—a federal program designed to assist students with financial need which exceeds that covered by other aid programs. Priority normally is given to Pell Grant recipients who, after assuming a work-study or loan commitment, still demonstrate additional need.

COLLEGE SCHOLARSHIP ASSISTANCE PROGRAM GRANT (CSAP)—a program administered by the State Council of Higher Education for Virginia, designed to assist students with exceptional financial need. To qualify for an award, a student must be a domiciliary resident of Virginia.

JAMES TURNER SMITH ACADEMIC SCHOLARSHIP PROGRAM—provided by the College each year to two graduating seniors at Franklin County High School. A scholarship provides tuition coverage for two semesters of full-time study and is awarded in the first year of enrollment. Applicants are required to submit a transcript, three letters

of reference, and statements detailing high school extracurricular activities and career goals. Application forms are available from the Counseling Office at Franklin County High School or the Office of Financial Aid at Virginia Western Community College. The application deadline is May 1.

STATE LAW ENFORCEMENT OFFICERS EDUCATIONAL PROGRAM (SLEOEP)—a grant program for criminal justice personnel (state troopers, policemen, deputies, corrections personnel, etc.) to cover the cost of tuition. Students must be employed full time in an approved law enforcement/criminal justice occupation and enrolled in a related program of study. Demonstration of financial need is not required. The Office of Financial Aid should be contacted for specific information.

VIRGINIA GENERAL ASSEMBLY NURSING SCHOLARSHIP PROGRAM—available to nursing majors based on both scholarship and need. Recipients must engage in full-time nursing practice within the Commonwealth of Virginia after graduation. Applications must be submitted during the preceding academic year, with deadlines of June 30 for first-year nursing students and March 30 for second-year nursing students.

VIRGINIA WESTERN COMMUNITY COLLEGE ACADEMIC SCHOLARSHIP PROGRAM—awarded each year to area high school seniors on the basis of academic achievement. Demonstration of financial need is not required. The scholarship funds are provided by the various governmental subdivisions of the College's service region. Awards are for tuition coverage for two semesters of full-time study and are received during the first year of enrollment.

VIRGINIA WESTERN COMMUNITY COLLEGE NURSING SCHOLARSHIP PROGRAM—awarded each year to area high school seniors who have been accepted into the associate degree nursing program. Demonstration of financial need is not required. Awards are for two semesters of full-time study and are received during the first year of enrollment in the nursing program.

VIRGINIA WESTERN COMMUNITY COLLEGE EDUCATIONAL FOUNDATION SCHOLARSHIP PROGRAM—provided to deserving students in accordance with criteria specified by the scholarship donors. The student's academic major, financial need, and past academic performance normally are considered.

PRIVATE SCHOLARSHIP PROGRAMS—several privately funded scholarship programs are provided by supporters of the College for qualified students in various fields of study. One such program is the G.E. Matheny Scholarship, available each year to an outstanding sophomore student upon completion of a program that leads to a baccalaureate degree in the field of biology. The award is provided for use at a four-year institution. Other privately funded scholarships available for study at Virginia Western Community College are provided by the following sponsors:

- Altruist Club
- American Business Women's Association
- Atlantic Companies
- Mike Bassett Memorial Scholarship Program
- Bedford Memorial Foundation, Inc.
- Business and Professional Women's Foundation
- Chesapeake Corporation Foundation
- City of Roanoke Redevelopment and Housing Authority
- Continental Societies Scholarship Program
- Cooper Wood Products Foundation, Inc.
- Elks National Foundation Vocational Grant Program
- Fel-Pro Automotive Technicians Scholarship Program
- HCA Lewis-Gale Hospital
- Alice B. Hinchcliffe Scholarship Program
- Lewis-Gale Foundation
- Lynchburg Dental Auxiliary
- Mental Health Association of Roanoke Valley
- National Association of Women in Construction, Roanoke Chapter
- Frank E. Page Scholarship Program
- Mr. and Mrs. Emanuel Payne Scholarship Program
- Barry L. Pendry Memorial Scholarship Program
- Professional Construction Estimators Association, Blue Ridge Chapter
- Roanoke Academy of Medicine Auxiliary
- Roanoke Memorial Hospitals
- Virginia Extension Homemakers Council

STAFFORD LOAN PROGRAM—permits eligible students to receive long-term, low-interest educational loans with no repayment

or interest obligations while they are enrolled in college. Loans are provided by banks, savings and loan associations, and credit unions. Borrowers must be enrolled at least half time and demonstrate financial need.

PLUS LOANS AND SUPPLEMENTAL LOANS FOR STUDENTS (SLS)—the PLUS Program is designed to assist the parent or legal guardian of a dependent student whose educational expenses exceed other financial resources. Whereas PLUS loans are provided to parents, SLS loans are designed to assist independent students in the same manner. Repayment normally begins within 60 days from the date of disbursement and can continue over a ten-year period.

EDVANTAGE LOAN PROGRAM—a state-funded program similar to PLUS/SLS. A fifteen-year repayment period is provided, assuming the borrower repays the minimum monthly amount. The interest rate varies in direct relationship to the prime lending rate and has no ceiling.

STUDENT AID FUND LOAN—designed to meet short-term emergencies for tuition. Interest-free loans are available from a fund donated by local businesses and community organizations. Repayment normally is expected within a 45-day period. Students in need of an emergency loan should contact the Financial Aid Office of the College.

COLLEGE WORK-STUDY PROGRAM—provides federally funded part-time employment opportunities on campus for students to meet part of their educational expenses.

VIRGINIA WAR ORPHANS EDUCATION PROGRAM—provides educational assistance for children of certain veterans and service personnel. Applicants must be at least 16 years of age and no older than 25 years of age, and must have a parent who died or became permanently and totally disabled due to a war-related injury or who is listed as a prisoner of war or missing in action. Further information and application forms are available from the Director, Division of War Veterans' Claims, Commonwealth of Virginia, 210 Franklin Road, S.W., Roanoke, Virginia 24011. Applications should be submitted at least four months before the expected date of enrollment.

VIRGINIA PUBLIC SERVICE ORPHANS EDUCATION PROGRAM—provides tuition support for children of law enforcement officers, firefighters, and rescue squad members. Applicants must be at least 16 years of age and no older than 25 and must have a parent who was killed while serving in one of the above capacities.

VIRGINIA NATIONAL GUARD TUITION ASSISTANCE PROGRAM—provides partial reimbursement for tuition costs. Demonstration of financial need is not required. Members of the Virginia National Guard may be eligible. Applications are available from unit commanders.

JOB TRAINING PARTNERSHIP ACT PROGRAM—students who satisfy JTPA guidelines and definitions as economically disadvantaged, unemployed, or underemployed may qualify for financial support including tuition and book coverage and transportation allowance. Information may be obtained from the JTPA Office at 857-7373.

Veterans Affairs

The Veterans Affairs Office assists students in applying for VA benefits, in furthering the process of certifying eligibility, and in maintaining accurate enrollment and student status records. All veteran students receiving educational benefits must be enrolled in an official curriculum leading to a diploma, certificate, or degree. Veterans and eligible dependents of veterans should contact the Office of Veterans Affairs, 5 Fishburn Hall on the Virginia Western campus. The telephone number is 857-7395. Programs of education offered at Virginia Western Community College are approved by the Commonwealth of Virginia Department of Education for VA entitlements.

PART V

Academic Support Services

Counseling Services

Potential students and newly enrolled students should contact the Counseling Office for admission and registration information and for assistance in making such decisions as choice of career, curriculum of study, and other academic or personal matters. Because student success is the highest priority of the College, a staff of full-time counselors is available to assist students in determining and fulfilling their educational goals.

The Counseling Office offers assistance in a variety of formats. Classes are taught on subjects such as Study Skills, Career Development, College Survival, and Personal Development. Seminars on transferring to four-year colleges, personal finances, test-taking skills, and other useful topics are offered throughout each semester. Individual and group counseling are offered to students seeking assistance with educational, career, or personal problems.

Career Services/Job Referral

The College maintains the Office of Career Services/Job Referral 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. The Career Services/Job Referral Office houses information on tuition, program requirements, and transfer procedures for students planning to transfer.

The counseling staff provides 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.

Student Support Services Program

The Student Support Services program at Virginia Western Community College is designed for students with academic potential who by reason of educational, cultural, or economic background, or physical handicap or learning disability are in need of special services. The focus of Student Support Services is to help qualified students 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 Student Support Services counselor. The purpose of the meeting is to discuss program accessibility and individual needs. Handicapped applicants who plan to enroll in the College are encouraged to advise the Student Support Services counselor of their need for auxiliary aids, readers, tutors, interpreters, taped materials, or other services and devices as far in advance as possible before classes begin. The Student Support Services office is located in T-111 and the phone number is 857-7286. The VDD number is (703) 857-7918. The Section 504 Coordinator is located in Fishburn Hall, Room 018, and the phone number is 857-7240 should you have concerns or need specific information.

Student Activities Program

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 opportunities for students to develop their social, intellectual, and physical abilities through organized co-curricular activities. The Student Activities Office coordinates social, cultural, and recreational programs to enrich campus life. Music and dance performances, art exhibitions, lectures, plays, dances, and intercollegiate athletics are all part of the student activities program of the College.

STUDENT GOVERNMENT ASSOCIATION (SGA)—The SGA serves as a vital link in communication among students, faculty, and administration. All students are members of the SGA and are entitled to participate in meetings and election of officers. In keeping with the purpose of the SGA to further the interests of students and the College through student representation, SGA officers are

members of other college committees and organizations that affect student life.

CAMPUS CLUBS AND ORGANIZATIONS—Official recognition is given to scholastic, civic, athletic, professional, and religious clubs and organizations that have applied for and received College approval. Every club or organization must have a faculty sponsor. Students interested in information regarding new or established clubs and organizations should contact the Office of Student Activities.

STUDENT PUBLICATIONS—The Student Activities Office produces the student news magazine, Virginia Western Folio, which serves as an important means of student expression and campus communication. The Student Handbook is published annually to provide students with information about policies and procedures of the College.

Off-campus Housing

No dormitories or other residential facilities are provided by the College; however, a housing file, available through the Student Activities Office, provides information regarding available places to live within the community. This service includes a listing of rooms, apartments, and houses to rent or share, the names of other students who are looking for roommates, and other pertinent information to assist students in obtaining suitable housing.

Library

Educational programs undertaken at Virginia Western Community College are supported in Brown Library by a collection of relevant books and study materials. The considerable variety of reading matter in the collection reflects the multitude and diversity of programs offered at the College. In the selection of library materials, consideration is also given to the personal and professional interests and needs of students and faculty. Formal and informal instruction in the use of books and libraries is given throughout the student's college stay.

Library resources include: 53,000 books; 2,300 record albums and cassette tapes; 7,600 reels of microfilm; and current subscriptions to 500 periodicals and 16 newspapers. Adjacent reading areas are carpeted and contain individual study carrels to reduce noise levels and create an atmosphere conducive to browsing, reading, and studying.

A guide to the Library has been prepared by members of the library staff and is available at the Library Information Desk. Before beginning work on research assignment or term papers, students are advised to consult with a reference librarian.

It is the policy of Brown Library to charge fines for overdue books and audiovisual items. The rate per day is 20 cents per item. There is a grace period of seven (7) calendar days beyond the original due date. If the item is returned after the grace period, the fine will be charged from the first day the item was overdue, excluding Sundays and other days the Library is closed.

College policy does not permit the student to register, graduate, or receive a grade report until the Library reports to Admissions that the student has either paid for the item or returned the item and paid the fine.

Learning Center

The Knisely Learning Center is the resource center for supplementary instructional assistance for students. Tutorial assistance, computer-assisted learning, video-assisted learning, and other audiovisual presentations are available to students and community members. Tutoring is available for students in most subject areas taught by the college. Tutorial assistance is offered to supplement individual classroom assignments. Lab assistants and tutors consult with individual students to assess their need for instructional assistance. Facilities are available for individual study and small study groups supervised by tutors and lab personnel. In addition, a small microcomputer lab and a variety of microcomputer software is available for use by students and the community. The Center gives placement tests for new students and administers the CLEP testing program. Lab assistants administer, monitor, and score tests, and provide assistance with audiovisual equipment and materials for students in the Center. The Learning Center is located on the ground floor of Brown.

Math Center

The staff in the Math Center is available to help students upgrade skills in

mathematics. The Center is equipped with traditional tapes, filmstrips, players, and reference texts. In addition, such nontraditional materials as a sound-page machine and a programmed calculator provide students with a variety of learning experiences. Supplementary study materials are available for students enrolled in mathematics courses. Tutors are available for students who need assistance.

Writing Center

The Writing Center provides assistance to students for all phases of the writing process, including prewriting strategies, developing the rough draft, making revisions (with particular emphasis on grammar and mechanics), and preparation of the final draft. The Writing Center offers assistance in writing research papers, reports, resumes, letters of application, and business correspondence. Individual tutorial assistance is available from the Writing Center Specialist and a staff of tutors. Assistance is also provided to second-language students. The Writing Center is located in the Learning Center on the ground floor of Brown.

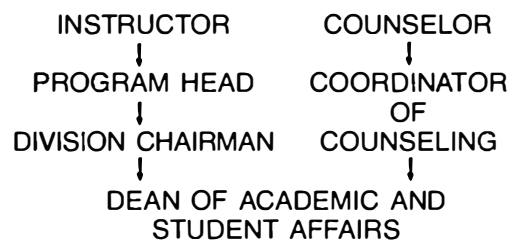
Channels of Communication for Academic Complaints, Suggestions, Appeals, and Grievances

A grievance is a formal written allegation by a student charging unlawful or unfair treatment with respect to the application of laws, rules, policies, procedures, or regulations under which the College operates.

Each student has the right to express an opinion, make suggestions, submit grievances, and appeal administrative decisions. Channels of communication are always open to students with personal problems and to those who wish to suggest improvements.

While students may elect to resolve a noninstructional conflict by contacting the Office of Counseling Services, instructional concerns should be addressed through appropriate academic channels.

To facilitate the communication process, one of the following administrative channels should be followed:



In the event that the grievance cannot be resolved satisfactorily following either of the above channels, an ad hoc grievance committee may be convened by the President of the College to review the case and make recommendations to the President. The President's decision shall be final. The ad hoc committee shall consist of at least one administrator, two teachers, and two students. Members shall not be from the division involved. One student and one teacher may be selected by the student filing the grievance. The appointed administrator shall be chairman of the committee and will be responsible for calling the meeting and keeping a record of the proceedings.

Policies and Procedures Relating to Sexual Harassment

Virginia Western Community College seeks to prevent sexual harassment on its campus. The following describes the measures appropriate in dealing with the subject.

Sexual harassment includes such behavior as sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature directed to a student when one or more of the following circumstances are presented:

1. Toleration of the conduct is an implicit or explicit term or condition of admission or academic evaluation;
2. Submission to or rejection of such sexual conduct is used as a basis for academic evaluation affecting such individual; or
3. Such conduct interferes with a student's academic performance, or creates an intimidating, hostile, or offensive learning environment.

Existing disciplinary and grievance procedures or informal proceedings, as appropriate, shall serve as the framework for resolving allegations of sexual harassment.

The following procedure shall be followed by students in filing allegations of sexual harassment:

Students who believe that they have been subjected to sexual harassment may take their complaints to the Title IX Coordinator, Fishburn Hall 216, 857-7537. The student will be counseled on the validity and seriousness of the allegation and will be informed of proper procedures that should be followed. In the event the matter cannot be informally resolved, the student shall have the right to file the charges through the student grievance procedure.

Policy on Substance Abuse

Substance abuse is a serious impediment to the efforts of the College to provide the best possible educational opportunity for students. Furthermore, alcohol and drug abuse interferes with clear thinking and performance and imperils personal health and public safety. Accordingly, the College is committed to a three-part policy on substance abuse: education and prevention, enforcement, and referral for counseling.

EDUCATION AND PREVENTION—Information on alcohol and drugs for the purpose of helping students develop a realistic understanding of the consequences of substance abuse and to make responsible decisions for their own welfare and the welfare of others is available from the Counseling Office and the Office of Student Activities. In addition, various seminars, speakers, and other events are periodically sponsored by the College to promote awareness of substance abuse. Credit courses that develop students' understanding of this issue are offered through the Divisions of Social Science, Health Technology, and Continuing Education.

ENFORCEMENT—In accordance with policies adopted by the State Board for Community Colleges, students may not possess, use, or distribute any illegal substances while on campus, attending a College-sponsored, off-campus event, or while serving as a representative of the College at off-campus meetings. This prohibition includes alcoholic beverages, except where permitted. Students who violate this policy will have College charges processed against them in the normal manner of due process provided by College disciplinary procedures. Violations of this policy that involve a criminal offense will result in notification to the appropriate local, state, or federal law enforcement authorities for appropriate action.

REFERRAL FOR COUNSELING—The Counseling Office provides information and referrals to community agencies, organizations, and health-care facilities for treatment of substance abuse. To the extent permissible by law, confidentiality is protected so that students who seek help for substance-abuse problems can receive counseling and referral for treatment without fear of reprisal. Questions regarding counseling should be directed to the Counseling Office.

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 traffic 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.

Student parking on campus is permitted only in the spaces **marked in white**; 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 must be paid to the signs posted at the entrance to the lot.

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 campus.

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

There is no charge for parking decals; however, the display of a decal on each car on campus is required.

PART VI

Academic Regulations

Credits and Academic Load

The normal academic course load for students is 15-17 credits. The minimum full-time load is 12 credit hours and the normal maximum full-time load is 18 credits. Students wishing to carry an academic load of more than 18 credits must have the approval of the Coordinator of Admissions and Records who serves as the designee of the Dean of Academic and Student Affairs for this purpose.

I. Student credit loads of 19 or greater semester hours may be approved under the following circumstances:
   A. Students have course load of 19 credits including Orientation (STD 100);
   B. Students with grade point average (GPA) of 3.0 or above may take 19-21 credits;
   C. Students may take in excess of 18 but never more than 21 credits when recommended by an advisor/counselor if they have demonstrated ability to handle load and special circumstances exist;
   D. Transient students may take up to 21 credits when recommended by the host college or university.

II. Upon recommendation by an advisor/counselor, students may be required to take less than the minimum full-time academic load (12 semester hours) if:
   A. Students are on academic warning or probation;
   B. Student placement test scores are low and developmental courses are recommended;
   C. High school graduates with a GPA of 2.0 or less.

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

Incomplete—No credit. Used for unusual circumstances at the discretion of the instructor. Since the "incomplete" extends enrollment in the course, requirements for satisfactory completion must be established through student/faculty consultation. Courses for which the grade of I has been assigned should be completed as soon as possible and in all cases must be completed by the end of classes of the next semester (excluding summer); otherwise, the I grade will be changed to an F grade.

P Pass—Credit earned but not included in grade point average. Applies to developmental studies courses, noncredit courses, orientation, and specialized courses and seminars at the discretion of the College. Up to ten (10) credit hours for which the P has been awarded may be applied toward completion of a program. A grade of P may be used as a grading option with the permission of the division chairman.

R Re-Enroll—No credit. The student is making substantial progress but all course objectives have not been completed; to be used only for developmental studies courses (numbered 01-09). Re-enrollment for the completion of course objectives is required.

U Unsatisfactory—No credit. The student has not made satisfactory progress. Applies only to developmental studies courses, noncredit courses, orientation, specialized courses, and seminars at the discretion of the College. Re-enrollment for the completion of course objectives is required.

W Withdrawal—No credit. A grade of W is awarded to students who withdraw or are withdrawn from a course after the add/drop period but prior to the completion of 60 percent of the session. (Withdrawal deadlines are published

each term in the Schedule of Classes.) Students do not automatically receive a W if they stop attending classes. Students must complete a schedule change form and deliver it to the Office of Admissions prior to the end of the drop deadline in order to avoid receiving a grade of F. After that time, students will receive a grade of F if they stop attending class, except under mitigating circumstances, which must be documented. Such requests should be made to the Coordinator of Admissions and Records during the term in which the discontinuation of attendance occurs.

X Audit—No credit. To audit a course, the student must obtain permission from the appropriate division chairman during the first week of class. Audited courses carry no credit and do not count as 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 Point Average

The grade point average (GPA) is determined by dividing the total number of grade points earned (A-4, B-3, C-2, D-1, F-0) by the number of credits attempted. Grades of I, P, R, U, W, and X are not included in the calculation of GPA.

Repeating a Course

A student should normally be limited to two enrollments in the same credit course. Should the student request to enroll in the same course more than twice, the need should be documented and approved by the Dean of Academic and Student Affairs or his designee.

If a course is repeated for credit, only the last grade earned is counted toward graduation upon completion of a program. Students should consult with a counselor or faculty advisor before repeating a course for credit. All grades earned for all courses taken one or more times are included in the cumulative grade point average and are indicated on the student's permanent record card.

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 jeopardize the student's grade or 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, the division office should be contacted.

The policy on attendance and make-up examinations is generally the prerogative of each instructor. Instructors will provide students with a statement of their attendance policy during the first class meeting. When the number of unexcused absences reaches a sum equivalent to 30 percent of the total instructional time (e.g., 5 weeks in a 15-week course), the instructor may drop the student from class. (See explanation of withdrawal grades.)

Final Examinations

All students are expected to take their final examinations at the regularly scheduled times. No exceptions will be made without prior approval of the Instructor and the Dean of Academic and Student Affairs.

Grade Reports

Final grade reports are mailed to the student after the end of each semester. 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 semester in which the grade was given. Normally, a change of grade(s) cannot take place after the semester following the issuance of the grade.

Transcripts

Curricular students, students who enroll within one year from their high school graduation, and students who do not indicate their intent to be noncurricular must provide

high school transcripts. When the college recognizes that the high school transcript is of no value for college or curricular admission, the transcript may be waived.

Students previously enrolled at any other college will be required to provide transcripts unless the application clearly indicates the student's desire to be noncurricular.

Students will be admitted to a curriculum after meeting all curriculum admissions criteria. Students may enroll through the add period; because of this, students may be allowed to proceed through the admissions process without waiting for transcripts. If students have not provided all undergraduate transcripts (graduate transcripts should be provided if students want them considered for transfer credit) by the end of the fourth week of the semester, they will be notified that failure to provide required transcripts by the end of the eighth week will cause an administrative hold to be placed on their file. The hold will do the following: (1) students will be made noncurricular, (2) transcripts and grades will not be released, and (3) financial aid, veterans benefits, and other assistance could be adversely affected.

No currently enrolled nondegree student may be reclassified as a degree-seeking student until all postsecondary undergraduate transcripts have been provided.

Undergraduate college transcripts may be waived by the college when (1) the transcript is not available because of circumstances over which the student has no control, or (2) when the transcript has no value for college or curricular admission.

Academic Honors

At the end of each semester, the Dean's List is prepared, recognizing all regular full-time students who earned a grade point average between 3.2 and 3.4. 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 is not responsible for newspaper publicity of these lists.

Students who have completed a minimum of 45 semester hours in an AA, AS or AAS program at Virginia Western 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 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 good academic standing. Students are expected to maintain a 2.0 (C) grade point average to be making normal academic progress toward graduation.

ACADEMIC WARNING—Any student who fails a course or who fails to attain a minimum grade point average of 2.0 for any semester will receive an "Academic Warning."

ACADEMIC PROBATION—Students who fail to maintain a cumulative grade point average of 1.50 will be on academic probation until such time as their cumulative average is 1.50 or better. The statement "Academic Probation" will be placed on their permanent records. Generally, a student on probation is ineligible for appointive or elective office in student organizations unless special permission is granted by the Dean of Student Services or another appropriate College administrator. Students usually will be required to carry fewer credits than normal the following semester. Students on academic probation are required to consult with their counselors. Students shall be placed on probation only after they have attempted 12 semester credit hours.

ACADEMIC SUSPENSION—Students on academic probation who fail to attain a grade point average of 1.50 will be placed on suspension only after they have attempted 24 semester credit hours. Academic suspension normally will be for one semester unless the student reapplies and is accepted for readmission to another curriculum of the College. The statement "Academic Suspension" will be placed on the student's permanent record. Students who have been informed that they are on academic suspension may submit an appeal in writing to the Chairman of the Admissions Committee for reconsideration of their cases. Suspended students may be readmitted after termination of the suspension period and

upon formal written petition to the Chairman of the Admissions Committee.

ACADEMIC DISMISSAL—Students who do not maintain at least a 2.0 grade point average for the semester of reinstatement to the College when on academic suspension will be academically dismissed. Students who have been placed on academic suspension and achieve a 2.0 grade point average for the semester of their reinstatement must maintain at least a cumulative 1.50 grade point average in each subsequent semester of attendance. Students remain on probation until their cumulative grade point average is raised to a minimum of 1.50. Failure to attain a cumulative 1.50 grade point average in each subsequent semester until the cumulative GPA reaches 1.50 will result in academic dismissal. Academic dismissal normally is permanent unless, with good cause, students reapply and are accepted under special consideration for readmission by the Admissions Committee of the College. The statement "Academic Dismissal" will be placed on the student's permanent record.

The College reserves the right to place students on academic probation or academic suspension where circumstances warrant.

Academic Advising

Initial freshman advising ordinarily is done by a counselor; however, each student in a curriculum of study is assigned to a faculty advisor consistent with the student's program of study. The faculty advisor will assist the student in selecting proper courses, interpreting curriculum requirements, and assessing academic progress. Advising days are scheduled during early registration periods or other announced times; however, students are encouraged to confer with their advisors on a regular basis during office hours.

Quarter-to-Semester Conversion

Along with all 23 colleges in the Virginia Community College System, Virginia Western Community College converted from the quarter system to the semester system at the end of the 1987-88 academic year. Students may graduate under the requirements of the Catalog under which they originally enroll if they maintain continuity of enrollment to the time of graduation. Continuity of enrollment is maintained by students if nonenrollment does not exceed three consecutive quarters or two consecutive semesters, excluding summer term.

Those students who originally enrolled under the quarter system may, through the 1991-1992 academic year, elect to graduate under the requirements of the last quarter catalog. Beginning with Fall Semester 1992, students may no longer graduate under a quarter system.

Students should contact their faculty advisor or a counselor for assistance in relating quarter credits earned to corresponding semester curriculum requirements.

PART VII

Programs of Study And Graduation Requirements

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.

1. DEGREE PROGRAM—A planned program of study composed of a minimum of 65 semester hours at the 100 and 200 course levels which culminate in a degree.

   Degree—An award at the associate level that represents completion of the requirements of a degree program.

   Major—A collection of courses that are necessary to meet the requirements of the degree program under which the major is classified.

   Specialization—Variation from parent major by 12-18 credit hours in the major area.

   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. See catalog page 32.

   An **Associate in Science (AS)** is awarded to students majoring in such specialized curricula as Business Administration, Engineering, Education, and Science. Students receiving an AS degree generally transfer to four-year colleges or universities. See catalog page 32.

   An **Associate in Applied Science Degree (AAS)** is awarded to students majoring in an occupational-technical curriculum. Students receiving an AAS may elect to pursue immediate employment or transfer to selected four-year colleges or universities. See catalog page 32.

2. DIPLOMA PROGRAM—A two-year program of study with a major in an occupational area that may include courses numbered 10-299.
3. CERTIFICATE PROGRAM—A program of study of fewer than two years in length with a major in an occupational area with a minimum of 30 credit hours that 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 (fewer than 30 credit hours) that may include courses numbered 10-299).

List of Programs

Associate in Arts (AA)
- Liberal Arts
  - Fine Arts

Associate in Science (AS)
- Business Administration
- Education
- Engineering
- General Studies
- Science
  - Computer Science
  - Pre-Nursing

Associate in Applied Science (AAS)
- Accounting
- Administration of Justice
- Architectural Technology
- Automotive Technology
- Civil Engineering Technology
- Commercial Art
- Computer Information Systems
- Dental Hygiene
- Early Childhood Development
- Electrical/Electronics Engineering Technology
- Electrical/Engineering Technology (Part-time Evening Program)
- Horticulture Technology
  - Indoor Plants/ Floriculture
  - Outdoor Plants/ Landscaping
- Legal Assisting
- Management
  - Banking and Finance
  - Merchandising
  - Real Estate
- Mechanical Engineering Technology
- Mental Health
  - Optional Track (College Transfer)
  - Clinical Track

Nursing
Office Systems Technology
Executive Secretary
Legal Secretary
Medical Secretary
Word Processing
Radio and Television Production
Radiography

Diploma Program
Automotive Analysis and Repair

Certificate Programs
Air Conditioning and Refrigeration
Architectural Drafting
Child Care
Clerical Studies
Engineering Technical Assistant
Legal Assistant
Medical Transcriptionist
Savings and Loan Administration
Welding

Career Studies Programs
Air Conditioning and Refrigeration
Architectural Drafting
Automotive Mechanics
Basic Electricity/Electronics
Business Industrial Supervision
Civil Technology/Surveying
Construction Supervisory Training
Credit Union Aide
Education Secretary
Electrical Wiring
Electronic Servicing
Fire Fighting and Prevention
Floral Design and Indoor Plant Care
Landscaping and Outdoor Plant Care
Metal Processing
Microcomputer Studies
Nursing Assistant
Occupational Safety
Plant Propagation and Production
Real Estate
Welding Practice
Word Processing

Graduation Requirements

The college shall ensure that students who receive associate degrees, diplomas, or certificates shall have completed the established graduation requirements that follow:

Associate Degree. To be eligible for graduation with an associate degree from the college, students must have:

A. fulfilled all of the course and credit-hour requirements of the degree curriculum with at least fifteen semester hours acquired at Virginia Western;
B. been certified by an appropriate college official for graduation;
C. earned a grade point average of at least 2.0 in all studies attempted which are applicable toward graduation in their curricula;
D. filed an application for graduation in the Office of Admissions and Records; and
E. resolved all financial obligations to the college and returned all liberary and college materials.

Diploma and Certificate. To be eligible for graduation with a diploma or a certificate from the college, students must have:

A. fulfilled all of the course and credit-hour requirements of the curriculum as specified in the college catalog with 25 percent of the credits acquired at Virginia Western;
B. been certified by an appropriate college official for graduation;
C. earned a grade point average of 2.0 in all studies attempted which are applicable toward graduation in their curricula;
D. filed an application for graduation in the Office of Admissions and Records; and
E. resolved all financial obligations to the college and returned all library and other college materials.

Career Studies. A program of study of less than one year in length in an occupational area (fewer than 30 credit hours) that may include courses numbered 10-299.

Outcomes Assessment Requirement

Students may be required to take one or more tests designed to measure general education achievement and/or achievement in selected major areas prior to graduation for the purpose of evaluation of academic programs. No minimum score or level of achievement is required for graduation. Test results will remain confidential and will be used for the sole purpose of improvement of the College.

Minimum Requirements for Associate Degree

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

	Number of Credits (Semester Hours)		
	AA[a]	AS[a]	AAS
Humanities			
English Composition	6	6	0-6
Communication Skills	0	0	0-6 } 6
Literature (English, American, or World)	3-6	0-3	—
Speech or English	0-3 } 6	0-3 } 3	0-3
Art, Drama, Music, Humanities and/or Philosophy	0-3	0-3	—
Foreign Language	8-16[b]	0-16[b]	—
Social Sciences			
History (American or Western Civilization)	6	3-6	0-6
Economics	0-6	0-6	0-6
Political Science	0-6 } 6[c]	0-6 } 6[c]	0-6 } 6
Psychology	0-6	0-6	0-6
Sociology	0-6	0-6	0-6
Other Social Sciences	—	—	0-6
Natural Sciences and Mathematics			
Natural Sciences (Laboratory) (Biology, Chemistry, Geology, Physics)	8-12	8-16[e]	0-4
Mathematics	6	6[f]	0-3 } 3
Other Mathematics and Natural Sciences	—	—	0-3
Health, Physical Education or Recreation	2-4	2-4	2-4
Orientation	1	1	1
Major Field and Elective Requirements	2-16[a]	1-30	47[d]
MINIMUM TOTAL NUMBER OF CREDITS FOR DEGREE	65	65	65

[a] *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 faculty advisor or Counseling Department in planning their program and selecting electives.*

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

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

[d] *Provision must be made for electives chosen from disciplines outside the student's area of specialization. Provision must be made for a minimum of 30 semester-hours credit in the major field.*

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

[f] *Minimum of 3 semester hours of math required for a General Studies major.*

Approved List of Transfer Electives

A.A. and A.S. Degrees

The purpose of this list of courses is to assist students in scheduling classes leading to an Associate in Arts (A.A.) or Associate in Science (A.S.) degree. All electives are to be taken from the courses listed below. Divisional approval is required for any deviation from this list. Students should check the semester schedule of classes to ensure that prerequisites have been met before registering for any course. Electives should be selected carefully in conjunction with a faculty advisor or counselor and after examining the requirements at the transfer institution.

Transfer Electives

Humanities Electives

*ART 101-102
*ENG 211-212, 241-242, 243-244
FRE 101-102, 201-202
GER 101-102, 201-202
*HUM 201-202
*MUS 121-122
PHI 101-102
SPA 101-102, 201-202

Social Science Electives

ECO 201-202
GEO 200, 210
*HIS 101-102, 121-122
*PLS 211-212
PSY 201-202
*SOC 201-202

Math and Science Electives

BIO 101-102, 205, 215, 226, 256, 265, 277
CHM 111-112, 241-242, 243-244
CSC 110, 201-202, 205, 206
*GOL 105-106
MTH 146, 150, 173-174, 241-242, 271-272, 275, 286, 291
NAS 131-132
PHY 201-202, 241-242

Health and Physical Education Electives

HLT 110
PED Courses

*Either course in this two-semester sequence may be taken first.

Accounting

ASSOCIATE IN
APPLIED SCIENCE DEGREE
203

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 will be recommended for students with deficiencies in English and mathematics.

Accounting Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
ECO 201	Principles of Economics I	3	0	3
ENG 111	College Composition I (or English 101)	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 115	Keyboarding for Computer Usage (or OFT 111)	3	0	3
STD 100	Orientation	1	0	1
	Total	16	2	17
	Second Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
CIS 150	Introduction to Microcomputer Software	2	2	3
[1]ECO 202	Principles of Economics II	3	0	3
SPD 105	Oral Communication (or SPD 100)	3	0	3
[2]HLT 110	Concepts of Personal and Community Health (or PED Elective)	2	0	2
	Total	16	4	18
	Second-Year Curriculum			
	Third Semester			
ACC 223	Intermediate Accounting I	4	0	4
ACC 231	Cost Accounting I	3	0	3
ACC 261	Principles of Federal Taxation	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	3	0	3
	Total	16	0	16

continued

Fourth Semester

ACC 215	Computerized Accounting	3	0	3
ACC 224	Intermediate Accounting II	4	0	4
BUS 242	Business Law II	3	0	3
[3]FIN 215	Financial Management (or Business Elective)	3	0	3
	Elective	3	0	3
	Total	16	0	16

Total Minimum Credits for Degree 67

[1]*An elective may be substituted for ECO 202; the elective must be selected from history, political science, psychology, sociology or social science.*

[2]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

[3]*Business elective may be selected from ACC, BUS, CIS, FIN, MKT, OFT, or REA.*

[4]*Elective may be any 100 or above level course outside of major field.*

Administration Of Justice

ASSOCIATE IN APPLIED SCIENCE DEGREE
400

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 that 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. A career entrance program of courses is offered as well as a college transfer program.

Administration of Justice Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
[1]ADJ 100	Survey of Criminal Justice	3	0	3
ADJ 107	Survey of Criminology	3	0	3
ADJ	Administration of Justice Elective	3	0	3
CIS 100	Introduction to Information Systems	2	2	3
[2]ENG 101	Practical Writing I; OR	3	0	3
ENG 111	English Composition I			
[3]HLT 110	Concepts of Personal and Community Health	2	0	2
STD 100	Orientation	1	0	1
	Total	17	2	18
	Second Semester			
ADJ 105	The Juvenile Justice System	3	0	3
[1]ADJ 227	Constitutional Law for Justice Personnel	3	0	3
ADJ	Administration of Justice Elective	3	0	3
[2]ENG 102	Practical Writing II: OR	3	0	3
ENG 112	English Composition II			
[2]MTH 120	Introduction to Mathematics; OR	3	0	3
SPD 100	Principles of Public Speaking			
	Total	15	0	15
	Second-Year Curriculum—Career Track			
	Third Semester			
[1]ADJ 211	Criminal Law, Evidence and Procedures I	3	0	3
[4]ADJ	Administration of Justice Elective	0-3	0	0-3
[4]ADJ	Administration of Justice Elective	3	0-3	3-4
E	Elective	3	0	3
PLS 211	United States Government I	3	0	3
PSY 120	Human Relations	3	0	3
	Total	15-18	0-3	16-18
	Fourth Semester			
[1]ADJ 212	Criminal Law, Evidence and Procedures II	3	0	3
[4]ADJ	Administration of Justice Elective	3	0-3	3-4
ADJ	Administration of Justice Elective	3	0	3
E	Elective	3	0	3
PLS 212	United States Government II	3	0	3
	Total	15	0-3	15-16
	Total Minimum Credits for Career Track Degree			65-66
	Second-Year Curriculum—Transfer Track			
	Third Semester			
[1]ADJ 211	Criminal Law, Evidence and Procedures I	3	0	3
[5]E	Science Elective	3	3	4
MTH 151	Mathematics for the Liberal Arts I	3	0	3
PLS 211	United States Government I	3	0	3
PSY 201	Introduction to Psychology I	3	0	3
	Total	15	3	16

continued

Fourth Semester

[1]ADJ 212	Criminal Law, Evidence and Procedures II	3	0	3
E	Elective	3	0	3
[5]E	Science Elective	3	3	4
MTH 152	Mathematics for the Liberal Arts II	3	0	3
PLS 212	United States Government II	3	0	3
	Total	15	3	16

Total Minimum Credits for Transfer Track Degree..... 65

[1]ADJ 100-227 and ADJ 211-212 offered on alternate year basis; student should enroll in whichever course sequencwe currently offered.

[2]First-year curriculum courses for Career Track: ENG 101-102 and MTH 120; for Transfer Track: ENG 111-112 and SPD 100.

[3]Two Credits of Health (HLT) or Physical Education (PED) are required of all students except veterans who may substitute an elective.

[4]In Career Track: If ADJ 171-172 (4 credit hours each) are taken, delete one ADJ elective (3 credit hours).

[5]In Transfer Track: ADJ 171-172 transfers to SOME four-year institutions; a two-semester sequence of Natural Science (Biology, Chemistry, Geology, Physics) should be taken if student is unsure of transfer institution.

NOTE: Selection of electives and/or substitution of courses for any of the above requirements must be approved by ADJ program head before enrolling in courses.

Air Conditioning And Refrigeration

(Career Studies)
015

Purpose: The career studies program in Air Conditioning and Refrigeration is designed to meet the short-term training needs of the adult part-time student by presenting the essential technical concepts and practices of the air conditioning and refrigeration field. The broad goals of the AIRC certificate program apply to this program as well. All of the courses offered through this program may be applied toward the certificate in Air Conditioning and Refrigeration.

Occupational Objectives: Air conditioning system installer; air conditioning system service technician.

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

Air Conditioning and Refrigeration Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
AIR 121	Air Conditioning and Refrigeration I	2	2	3
ELE 133	Practical Electricity I	2	2	3
	Total	4	4	6
	Second Semester			
AIR 122	Air Conditioning and Refrigeration II	2	2	3
ELE 134	Practical Electricity II	2	2	3
	Total	4	4	6

Second-Year Curriculum

Third Semester

AIR 123	Air Conditioning and Refrigeration III	2	2	3
BLD 111	Blueprint Reading & the Building Code	2	2	3
	Total	4	4	6

Fourth Semester

AIR 124	Air Conditioning and Refrigeration IV	2	2	3
WEL 116	Welding I (Oxyacetylene)	1	3	2
	Total	3	5	5

Total Minimum Credits for Certificate 23

Air Conditioning And Refrigeration

(Certificate)
903

Purpose: Throughout our region (and the nation) there is a continuous need for skilled people to install and service a growing number of commercial, industrial, and home air conditioning systems. The air conditioning and refrigeration program is designed to prepare graduates for full-time employment in the installation, maintenance, and repair of air conditioning and refrigeration equipment.

The certificate program is offered on a part-time evening schedule and is intended for beginners as well as those currently working in the field. Necessary courses in related technical areas as well as business and economics are included in the program.

Occupational Objectives: Air conditioning system installer; air conditioning system service technician; air conditioning sales; Heating, Ventilation, and Air Conditioning Estimator.

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

Air Conditioning and Refrigeration Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
AIR 121	Air Conditioning and Refrigeration I	2	2	3
ELE 133	Practical Electricity I	2	2	3
STD 100	Orientation	1	0	1
	Total	5	4	7
	Second Semester			
AIR 122	Air Conditioning and Refrigeration II	2	2	3
ELE 134	Practical Electricity II	2	2	3
	Total	4	4	6
	Second-Year Curriculum			
	Third Semester			
AIR 123	Air Conditioning and Refrigeration III	2	2	3
BLD 111	Blueprint Reading & the Building Code	2	2	3
	Total	4	4	6

continued

	Fourth Semester			
AIR 124	Air Conditioning and Refrigeration IV	2	2	3
WEL 116	Welding I (Oxyacetylene)	1	3	2
	Total	3	5	5
REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER:				
BUS 165	Small Business Management	3	0	3
ECO 120	Survey of Economics	3	0	3
ENG 101	Practical Writing I	3	0	3
	Total	9	0	9
Total Minimum Credits for Certificate				33

Architectural Drafting

(Certificate)
930

Purpose: This program is designed to provide applied technical drafting knowledge and skills with specialization in the field of architectural drafting. The curriculum is primarily intended to train persons for full-time employment. In addition to technical courses, there are supporting courses in communications, mathematics, and social science. These courses serve to broaden the student's general education background and thus better prepare him or her for employment and advancement in this career area. All of the courses offered through this program may be applied toward the AAS degree in Architectural Technology.

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 Semester			
ARC 111	Introduction to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
STD 100	Orientation	1	0	1
	Total	5	6	7
	Second Semester			
ARC 112	Introduction to Architectural Drafting II	1	6	3
ARC 130	Introduction to Materials and Methods of Construction	4	0	4
	Total	5	6	7
	Second-Year Curriculum			
	Third Semester			
ARC 233	Advanced Architectural Drafting III	1	4	3
DRF 201	Computer Aided Drafting and Design I	1	3	2
	Total	2	7	5

Fourth Semester

ARC 234	Advanced Architectural Drafting IV	1	4	3
[1]E	Approved Technical Elective	2-3	0	2-3
	Total	3-4	4	5-6
	Additional Required Courses	14	0	14
Total Minimum Credits for Certificate				38

ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER:

ENG/SPD	English or Speech	3	0	3
[2]E	Social Science Sequence	6	0	6
MTH 103	Basic Technical Mathematics (or MTH 113)	5	0	5
	Total	14	0	14

[1]*Technical elective to be selected with department approval.*
[2]*A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*

Architectural Drafting

(Career Studies)
008

Purpose: This curriculum is designed to prepare students for entry-level positions in drafting or to upgrade the skills of those currently employed in technical drafting. This program offers the technical core of the certificate program in Architectural Drafting, without requiring the general education subjects. All of the courses offered through this program may be applied toward the certificate in Architectural Drafting.

Occuptional Objectives: Entry-level positions in the drafting field.

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

Architectural Drafting Curriculum Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ARC 111	Introduction to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
	Total	4	6	6
	Second Semester Semester			
ARC 112	Introduction to Architectural Drafting II	1	6	3
ARC 130	Introduction to Materials and Methods of Construction	4	0	4
	Total	5	6	7
	Second-Year Curriculum			
	Third Semester Semester			
ARC 233	Advanced Architectural Drafting III	1	4	3
DRF 201	Computer Aided Drafting and Design I	1	3	2
	Total	2	7	5

continued

	Fourth Semester Semester			
ARC 234	Advanced Architectural Drafting IV	1	4	3
[1]E	Approved Technical Elective	2-3	0	2-3
	Total	3-4	4	5-6

Total Minimum Credits for Certificate 23

[1] *Technical elective to be selected with departmental approval and may be taken any semester.*

Architectural Technology

ASSOCIATE IN
APPLIED SCIENCE DEGREE
901

Purpose: This program is designed to prepare qualified technicians for career opportunities in the architectural and building construction industries. Graduates may seek immediate employment or transfer to Bachelor of Technology programs at certain four-year colleges and universities.

Students in this curriculum receive in-depth instruction and practice in the planning, design, and preparation of architectural drawings for a variety of projects. In addition, the program includes courses in solar energy, materials and methods of construction, structural design principles, construction planning, estimating, and other topics relevant to the architectural and building construction industries.

Occupation Objectives: Varied opportunities in architectural offices, with building contractors and with industries related to the architectural and construction fields.

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 will be recommended for students with deficiences in English and mathematics.

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ARC 100	Introduction to Architecture	3	0	3
ARC 111	Introduction to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
EGR 100	Engineering Technology Orientation	0	2	1
[1]ENG 101	Practical Writing I	3	0	3
MTH 113	Engineering Technical Mathematics I	5	0	5
STD 100	Orientation	1	0	1
	Total	16	8	19
	Second Semester Semester			
ARC 112	Introduction to Architectural Drafting II	1	6	3
ARC 130	Introduction to Materials and Methods of Construction	4	0	4
[1]ENG 102	Practical Writing II	3	0	3
MEC 131	Mechanics I—Statics for Engineering Technology	3	0	3
MTH 114	Engineering Technical Mathematics II	5	0	5
	Total	16	6	18

Second-Year Curriculum
Third Semester Semester

ARC 233	Advanced Architectural Drafting III	1	4	3
ARC 255	Construction Estimating	2	0	2
CIV 171	Surveying I	2	3	3
DRF 201	Computer-Aided Drafting and Design I	1	3	2
[2]HLT/PED	Health or Physical Education Elective	1	0	1
MEC 132	Mechanics II—Strength of Materials for Engineering Technology	3	0	3
[3]E	Social Science Elective	3	0	3
	Total	13	10	17

Fourth Semester Semester

ARC 150	Introduction to Solar Industry	3	0	3
ARC 234	Advanced Architectural Drafting IV	1	4	3
ARC 244	Building Mechanical Equipment	2	0	2
CIV 218	Structural Design	4	0	4
[1]E	Elective	2-3	0	2-3
[2]HLT/PED	Health or Physical Education Elective	1	0	1
[3]E	Social Science Elective	3	0	3
	Total	16-17	4	18-19

Total Minimum Credits for Degree..... 72

[1]*ENG 111-112 with SPD 100 as Elective is recommended for students who plan to transfer.*
[2]*Two credits of health or physical education are required of all students except veterans, who may substitute an elective.*
[3]*A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*

Automotive Analysis and Repair

(Diploma)
907

Purpose: This program is intended to provide instruction in the theory, maintenance, and repair of automotive vehicles. It is a competency-based program wherein the student studies and performs assigned tasks that provide realistic exercises with expected and established qualitative goals. The vehicles and diagnostic equipment available are of the latest in use by the general public. The courses of this program are transferable to the associate degree program in Automotive Technology.

Occupational Objectives: To provide the industry with personnel qualified to fill the requirements for tune-up specialists, diagnostic and repair technicians, and parts handling and sales specialists.

Curriculum Admission Guidelines: Proficiency in high school English and general mathematics. Developmental courses will 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.

continued

Automotive Analysis and Repair Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
AUT 131	Automotive Technology I	3	6	5
AUT 171	Automotive Systems I	3	2	4
ENG 101	Practical Writing I	3	0	3
MTH 111	Technical Mathematics I	3	0	3
STD 100	Orientation	1	0	1
WEL 120	Fundamentals of Welding	1	3	2
	Total	14	11	18
	Second Semester			
AUT 132	Automotive Technology II	3	6	5
AUT 172	Automotive Systems II	3	2	4
E	Elective	3	0	3
ENG 102	Practical Writing II	3	0	3
MAC 131	Machine Lab I	1	3	2
	Total	13	11	17
	Second-Year Curriculum			
	Third Semester			
AUT 211	Automotive Systems III	3	3	4
AUT 231	Automotive Technology III	3	6	5
AUT 245	Automotive Electronics	3	3	4
[1]HLT/PED	Health (or PED)	2	0	2
[2]E	Social Science Elective	3	0	3
	Total	14	12	18
	Fourth Semester			
AUT 212	Automotive Systems IV	3	3	4
AUT 232	Automotive Technology IV	3	6	5
AUT 235	Automotive Heating and Air Conditioning	2	3	3
AUT 276	Shop Management	3	0	3
[2]E	Social Science Elective	3	0	3
	Total	14	12	18
Total Minimum Credits for Diploma				71

[1]*Two credit hours of health or physical education required of all students except veterans, who may substitute an elective.*

[2]*A two-semester sequence of social science is recommended for students planning to transfer to a baccalaureate degree program.*

Automotive Mechanics

(Career Studies)
016

Purpose: The purpose of this program is to teach the current technical and practical application procedures used in the automotive service industry. The program is designed to update mechanics and technicians in the industry and to teach the basic principles for the beginning student. Completion of the studies will give the student the required background to employ specialized diagnostic and repair methods.

Occupational Objectives: Qualify persons for positions in the automotive service and repair operations.

Curriculum Admission Guidelines: Proficiency in oral and written communications skills and general mathematics. Tools and safety equipment are the financial responsibility of the individual student.

Automotive Mechanics Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
AUT 241	Automotive Electricity I	3	3	4
AUT 265	Automotive Braking Systems	2	3	3
	Total	5	6	7
	Second Semester			
AUT 126	Auto Fuel and Ignition Systems	4	3	5
AUT 276	Shop Management	3	0	3
	Total	7	3	8
	Second-Year Curriculum			
	Third Semester			
AUT 141	Auto Power Trains I	2	6	4
SAF 127	Industrial Safety	2	0	2
[1]E	Technical Elective	2-4	6	2-4
	Total	6-8	12	8-10
Total Minimum Credits for Career Studies Certificate				23

[1]Technical elective to be selected with departmental approval and may be taken any semester.

Automotive Technology

ASSOCIATE IN
APPLIED SCIENCE DEGREE
909

Purpose: The purpose of this curriculum is to provide the student with a comprehensive program that includes the technical, communication, and management skills required in the automotive service industry. Designed within the program are experiences and activities that generate self-motivation, introduce research techniques, and teach innovative service procedures. The program will teach the student the proper and approved methods of automotive servicing, utilizing the latest in modern diagnostic and repair equipment.

In addition to the technical material, the program provides instruction in communication skills, business management practices, and related subjects to better prepare the graduate for placement in the field.

Occupational Objectives: Entry-level positions wih the potential for advancement to supervisory levels in the automotive service field.

Curriculum Admission Guidelines: Proficiency in high school English and mathematics (1 unit of algebra). Developmental courses will 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	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
MTH 111	Technical Mathematics I	3	0	3
AUT 131	Automotive Technology I	3	6	5
AUT 171	Automotive System I	3	2	4
[1]ENG 101	Practical Writing I	3	0	3
STD 100	Orientation	1	0	1
WEL 120	Fundamentals of Welding	2	3	2
	Total	15	11	18
	Second Semester			
AUT 132	Automotive Technology II	3	6	5
AUT 172	Automotive Systems II	3	2	4
E	Elective	3	0	3
[1]ENG 102	Practical Writing II	3	0	3
MAC 131	Machine Lab I	1	3	2
	Total	13	11	17
	Summer Semester			
AUT 136	Automotive Vehicle Inspection	1	2	2
AUT 217	Computerized Fuel Systems	2	3	3
AUT 238	Automotive Accessory Service	1	3	2
AUT 268	Automotive Alignment	1	3	2
HVE 110	Introduction to Hydraulics and Pneumatics	2	2	3
	Total	7	13	12
	Second-Year Curriculum			
	Third Semester			
AUT 211	Automotive Systems III	3	3	4
AUT 231	Automotive Technology III	3	6	5
AUT 245	Automotive Electronics	3	3	4
[2]HLT/PED	Health or Physical Education Elective	2	0	2
[3]E	Social Science Elective	3	0	3
	Total	14	12	18
	Fourth Semester			
AUT 212	Automotive Systems IV	3	3	4
AUT 232	Automotive Technology IV	3	6	5
AUT 235	Automotive Heating and Air Conditioning	2	3	3
AUT 276	Shop Management	3	0	3
[3]E	Social Science Elective	3	0	3
	Total	14	12	18
Total Minimum Credits for Degree				83

[1] *ENG 111-112 with SPD 100 as Elective is recommended for students who plan to transfer.*

[2] *Two credits of Health (HLT) or Physical Education (PED) are required of all students except veterans, who may substitute an elective.*

[3] *A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*

Basic Electricity/Electronics

(Career Studies)
017

Purpose: The career studies sequence in Basic Electricity/Electronics is designed to provide a formal background in the fundamental circuit theory and electronic principles involved in the servicing of a modern electronic system—whether it be a television receiver or a digital computer. Students enrolled in this course sequence may be currently employed in electronic servicing and wish to upgrade their formal background, or they may be preparing for entry-level positions in the electronic servicing field. Completion of this sequence will give the student the background required for specialized factory training of service personnel.

Occupational Objectives: Entry-level positions in electronic servicing or computer repair.

Curriculum Admission Guidelines: Math background equivalent to Algebra I.

Basic Electricity/Electronics Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ETR 113	D.C. and A.C. Fundamentals	3	3	4
	Total	3	3	4
	Second Semester			
ETR 148	Amplifiers and Integrated Circuits	3	3	4
	Total	3	3	4
	Second-Year Curriculum			
	Third Semester			
ETR 281	Digital Systems I	2	3	3
	Total	2	3	3
Total Minimum Credits for Career Studies Certificate				11

Business Administration

ASSOCIATE IN SCIENCE DEGREE
213

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 that 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 high school 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	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ENG 111	College Composition I	3	0	3
HIS 101	History of Western Civilization I (or HIS 121)	3	0	3
MTH 171	Pre-Calculus Mathematics I (or MTH 173)	3-5	0	3-5
[1]E	Science Elective	3	3	4
STD 100	Orientation	1	0	1
[2]E	Elective	3	0	3
	Total	16-18	3	17-19
	Second Semester			
ENG 112	College Composition II	3	0	3
HIS 102	History of Western Civilization II (or HIS 122)	3	0	3
MTH 271	Applied Calculus I (or MTH 174)	3-5	0	3-5
[1]E	Science Elective	3	3	4
[2]E	Elective	3	0	3
	Total	15-17	3	16-18
	Second-Year Curriculum			
	Third Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
CIS 100	Introduction to Information Systems	3	0	3
ECO 201	Principles of Economics I	3	0	3
ENG 241	Survey of American Literature (or ENG 243)	3	0	3
[3]HLT 110	Concepts of Pesonal and Community Health (or PED Elective)	2	0	2
[2]MTH 241	Statistics I (or Elective)	3	0	3
	Total	17	2	18

continued

Fourth Semester

ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
ECO 202	Principles of Economics II	3	0	3
[2]MTH 242	Statistics II (or Elective)	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
[2]E	Elective	3	0	3
	Total	15	2	16

Total Minimum Credits for Degree 67

[1]*A two-semester sequence of natural science must be chosen from the following: BIO 101-102, CHE 111-112, GOL 105-106, or PHY 201-202.*

[2]*Electives must be chosen from list of transfer electives on curriculum guide sheet.*

[3]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

Business Industrial Supervision

(Career Studies)
018

Occupational Objectives: 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
	First Semester			
BUS 111	Principles of Supervision I	3	0	3
BUS 115	Organizational Behavior	3	0	3
	Second Semester			
BUS 150	Principles of Management	3	0	3
BUS 205	Human Resource Management	3	0	3
	Third Semester			
BUS 236	Communication in Management	3	0	3
SAF 126	Principles of Industrial Safety	3	0	3
CIS 100	Introduction to Information Systems	3	0	3
	Total	21	0	21

Total Minimum Credits for Certificate 21

Child Care

(Certificate)
634

Purpose: The curriculum is designed to introduce interested persons, including parents, to the field of early childhood education and to provide opportunities for persons 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. 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 Semester			
CHD 121	Childhood Educational Development I	3	0	3
CHD 165	Observation and Participation in Early Childhood Settings	1	6	3
[1]HLT 106	First Aid and Safety	2	0	2
CHD 125	Creative Activities for Children	2	2	3
[2]ENG 111	College Composition I	3	0	3
HLT 135	Child Health and Nutrition	3	0	3
STD 100	Orientation	1	0	1
	Total	15	8	18
	Second Semester			
CHD 122	Childhood Educational Development II	3	0	3
CHD 165	Observation and Participation in Early Childhood Settings	1	6	3
[2]PSY 120	Human Relations	3	0	3
CHD 118	Methods and Materials in the Language Arts for Young Children	2	2	3
PSY 235	Child Psychology	3	0	3
CHD 216	Early Childhood Programs, School, Social Change	3	0	3
	Total	15	8	18
Total Minimum Credits for Certificate				36

[1]The requirement for first aid training may be met by a Red Cross Certificate in basic first aid. An additional two hours of course work must be taken to fulfill the credit hours requirement.

[2]For students taking fewer than 17 credit hours per semester, it is recommended that ENG 111 and PSY 120 be taken in the summer before or after the fall or spring semester.

Civil Engineering Technology

ASSOCIATE IN APPLIED SCIENCE DEGREE
915

Purpose: This curriculum is designed to prepare students for a career in the civil engineering technology field, with major applications in surveying and building construction. The program requires courses in drafting, surveying, construction planning, and other topics that are immediately useful to employers in the civil engineering and construction-oriented fields. Upon graduation, students may choose to enter the job market or transfer to a senior institution that offers a baccalaureate degree in Civil Engineering Technology.

Occupational Objectives: Varied opportunities with construction industries; technician with highway department; survey party member or chief; estimator.

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.

Civil Engineering Technology Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ARC 111	Introduction to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
CIV 171	Surveying I	2	3	3
EGR 100	Engineering Technology Orientation	0	2	1
[1]ENG 101	Practical Writing I	3	0	3
MTH 113	Engineering Technical Mathematics I	5	0	5
STD 100	Orientation	1	0	1
	Total	15	11	19
	Second Semester			
ARC 112	Introduction to Architectural Drafting II	1	6	3
CIV 172	Surveying II	2	3	3
[1]ENG 102	Practical Writing II	3	0	3
[2]HLT/PED	Health or Physical Education Elective	1	0	1
MEC 131	Mechanics I—Statics for Engineering Technology	3	0	3
MTH 114	Engineering Technical Mathematics II	5	0	5
	Total	15	9	18
	Third Semester			
CIV 230	Civil Construction Materials	3	3	4
DRF 201	Computer Aided Drafting and Design I	1	3	2
[2]HLT/PED	Health or Physical Education Elective	1	0	1
MEC 132	Mechanics II—Strength of Materials for Engineering Technology	3	0	3
PHY 201	General College Physics I	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	14	9	17

	Fourth Semester			
CIV 145	Applied Soil Erosion and Sediment Control	2	0	2
CIV 201	Suburban Development I	2	2	3
CIV 218	Structural Design	4	0	4
E	Elective	2-3	0	2-3
PHY 202	General College Physics II	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	16-17	5	18-19
Total Minimum Credits for Degree				72

[1]ENG 111-112 with SPD 100 as Elective is recommended for students who plan to transfer.

[2]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

[3]A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

Civil Technology/ Surveying

(Career Studies)
057

Description: This program is designed to prepare students for entry-level positions in Civil Technology or to expand the knowledge and skills of individuals presently employed in the field. All of the technical courses offered through this program may be applied to the Civil Engineering Technology degree program.

Occupational Objectives: Civil Technician
Surveying Aide

Civil Technology/Surveying Curriculum (Career Studies)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ARC 111	Introduction to Architectural Drft. I	1	6	3
MTH 103	Basic Technical Mathematics I	5	0	5
	Total	6	6	8
	Second Semester			
CIV 145	Applied Soil Erosion and Sediment Control	2	0	2
DRF 201	Computer-Aided Drafting & Design I	1	3	2
	Total	3	3	4
	Third Semester			
CIV 171	Surveying I	2	3	3
DRF 202	Computer-Aided Drafting & Design II	1	3	2
	Total	3	6	5
	Fourth Semester			
CIV 172	Surveying II	2	3	3
CIV 201	Suburban Development I	2	2	3
	Total	4	5	6
Total Credits Required for Career Studies Certificate				23

Clerical Studies

(Certificate)
218

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

Occupational Objectives: Typist/data entry; file clerk; receptionist; general office work; word processing specialist.

Curriculum Admission Guidelines: Applicant must meet the general requirements for admission to the college. Prerequisite of high school typing or a satisfactory score (minimum of 25 wpm) on a keyboarding skill examination required.

Clerical Studies Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
BUS 100	Introduction to Business	3	0	3
ENG 101	Practical Writing I	3	0	3
[1]OFT 112	Keyboarding/Typewriting II	3	0	3
OFT 251	Office Systems and Procedures I	3	0	3
STD 100	Orientation	1	0	1
E	Elective	2	0	2
	Total	15	0	15
	Second Semester			
OFT 215	Executive Keyboarding/Typewriting	3	0	3
OFT 216	Processing Procedures	3	0	3
OFT 241	Machine Transcription I	3	0	3
OFT 252	Office Systems and Procedures II	3	0	3
SPD 105	Oral Communications	3	0	3
	Total	15	0	15
Total Minimum Credits for Degree				30

[1]High school typing or satisfactory score (minimum of 25 wpm) on a keyboarding skill examination required.

Commercial Art

ASSOCIATE IN
APPLIED SCIENCE DEGREE
513

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, and related occupations.

Curriculum Admission Guidelines: A satisfactory aptitude for drawing is desirable. Developmental courses may be recommended for students with deficiencies in English, reading, and/or mathematics.

Commercial Art Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ART 121	Drawing I	1	4	3
ART 131	Fundamentals of Design I	1	4	3
ART 101	History and Appreciation of Art I	3	0	3
ENG 111	College Composition I (or ENG 101)	3	0	3
STD 100	Orientation	1	0	1
[1]E	Social Science Elective	3	0	3
	Total	12	8	16
	Second Semester			
ART 122	Drawing II	1	4	3
ART 132	Fundamentals of Design II	1	4	3
ART 102	History and Appreciation of Art II	3	0	3
SPD 100	Principles of Public Speaking (or SPD 105)	3	0	3
[1]E	Social Science Elective	3	0	3
PHT 101	Photography I	1	4	3
	Total	12	12	18
	Second-Year Curriculum			
	Third Semester			
ART 241	Painting I	1	4	3
ART 221	Drawing III	1	4	3
ART 281	Graphic Techniques I	2	3	3
ART 251	Communication Design I	2	3	3
MTH 120	Introduction to Mathematics	3	0	3
	Total	9	14	15
	Fourth Semester			
ART 242	Painting II	1	4	3
ART 252	Communication Design II	2	3	3
ART 282	Graphic Techniques II	2	3	3
ART 286	Communication Arts Workshop	1	4	3
E	Elective	2-3	0	2-3
[2]HLT 110	Concepts of Personal and Community Health (or Physical Education)	2	0	2
	Total	10-11	14	16-17
Total Minimum Credits for Degree				65

[1]Social Science Elective may be chosen from PSY 120, ECO 120, PLS 130, PSY 201-202, ECO 201-202, PLS 211-212, HIS 101-102, HIS 121-122, or SOC 201-202.
[2]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

Computer Information Systems

ASSOCIATE IN
APPLIED SCIENCE DEGREE
234

Purpose: The curriculum is designed for persons who will seek employment in the computer information field in business or 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. OFT 115 is recommended.

Computer Information Systems Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
CIS 110	Fundamentals of Computer Information Systems	3	0	3
ECO 201	Principles of Economics I	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
STD 100	Orientation	1	0	1
	Total	16	2	17
	Second Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics/or MTH 271	3	0	3
CIS 121	Computer Programming: BASIC I	3	2	4
CIS 131	Computer Programming: COBOL I	3	2	4
[1]ECO 202	Principles of Economics II	3	0	3
	Total	15	6	18
	Second-Year Curriculum			
	Third Semester			
CIS 205	Job Control Language	3	2	4
CIS 225	Computer Information System Development	3	0	3
CIS 231	Computer Programming: COBOL II	3	2	4
[2]HLT 110	Concepts of Personal and Community Health (or PED Elective)	1-2	0	1-2
SPD 105	Oral Communication	3	0	3
[3]E	Elective	3	0	3
	Total	16-17	4	18-19

	Fourth Semester			
CIS 161	Computer Programming: Assembler I	3	2	4
CIS 287	System Development Project	2	2	3
FIN 215	Financial Management	3	0	3
BUS 225	Applied Business Statistics (or MTH 241)	3	0	3
	Total	11	4	13
Total Minimum Credits for Degree				67

[1]An elective may be substituted for ECO 202; the elective must be selected from History, Political Science, Psychology, Sociology, or Social Science.
[2]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.
[3]Elective may be any 100 or above level course.

Construction Supervisory Training

(Career Studies)
006

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
	First Semester			
ENG 100	Basic Occupational Communication	3	0	3
ARC 140	Principles of Construction Safety	2	0	2
BLD 164	Construction Leadership and Motivation	2	0	2
	Second Semester			
BLD 166	Construction Law	2	0	2
BLD 167	Problem Solving and Decision making	2	0	2
BLD 168	Contract Documents	2	0	2
	Third Semester			
BLD 169	Cost Awareness and Production Control	2	0	2
BLD 170	Introduction to Project Management	2	0	2
BLD 175	Construction Productivity Improvement	2	0	2
BLD 177	Planning Scheduling Techniques	2	0	2
	Total	21	0	21
Total Minimum Credits for Certificate				21

Credit Union Aide

(Career Studies)
019

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 field.

Credit Union Aide Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
BUS 111	Principles of Supervision I	3	0	3
FIN 140	Introduction to Credit Unions	3	0	3
	Second Semester			
ACC 111	Accounting I	3	2	4
FIN 141	Principles of Credit Union Operations I	3	0	3
BUS 205	Human Resource Management	3	0	3
	Third Semester			
ACC 112	Accounting II	3	2	4
FIN 142	Principles of Credit Union Operations II	3	0	3
	Total	21	2	23
Total Minimum Credits for Certificate				23

Dental Hygiene

ASSOCIATE IN APPLIED SCIENCE
118

Purpose: The curriculum is designed to prepare selected students as preventive oral health professionals licensed to practice dental hygiene. Upon successful completion of the program, students will be eligible to take national, regional, and state board examinations leading to licensure as a registered dental hygienist (R.D.H.).

Accreditation Status:

The program has been accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the United States Department of Education.

Occupational Objectives:

A dental hygienist may work in such practice settings as:

- Dental offices and dental clinics
- Federal, state and local health departments
- Hospitals and nursing homes
- School districts or departments of education
- Educational programs for dental, dental hygiene, and dental assisting students
- Correctional facilities
- Private and public centers for pediatric, geriatric, and other individuals/groups with special needs
- Health Maintenance Organizations

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; and (d) Algebra II or college equivalent. A grade of C or better is necessary in required high school/college

units of math and chemistry. 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 fewer than 45 quarter hours or 30 semester hours of college work must submit SAT or ACT scores. Priority consideration will be given to applicants with a combined minimum (total) score of 900 on the SAT or a composite score of 18 or above on the ACT. 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 SAT/ACT scores.

Admission Procedures:

The Dental Hygiene program is open to any qualified male or female applicant. Early application is advisable due to the limited number of positions in the program. Deadline for submitting applications is March 15 for the upcoming academic year. If the number of qualified applicants falls below the maximum enrollment, the application deadline may be extended.

To qualify for consideration by the Dental Hygiene Admissions Committee, applicants must apply for admission to the college, submit official transcripts of all high school and college work, submit SAT/ACT scores (if applicable, as noted above), complete the Health Programs Application Form available in the Admissions or Counseling Office, and submit two letters of recommendation from employers/former teachers.

A personal interview with a counselor is required. Qualified applicants must be interviewed by the Dental Hygiene Admissions Committee. Upon admission to the program, and prior to the beginning of Fall classes, observation of dental and dental hygiene procedures is required for all applicants without prior experience in the dental field. The observation experience must be completed by August 1 (prior to start of Fall semester classes). Assistance in locating practitioners willing to provide observation experience may be provided in meeting this requirement. Written documentation of this experience is required.

Applicants should be aware that meeting the curriculum admission standards does not guarantee program admission. Applicants will be notified in writing of the action taken by the Dental Hygiene Admissions Committee.

Student Responsibilities:

Upon notification of acceptance to the curriculum, applicants are required to submit a medical and dental report indicating good general health. Current certification in cardiopulmonary resuscitation is required prior to beginning the fall semester of the first year of the program; recertification is required prior to beginning the second year of the program. Students are required to submit results of the Hepatitis B surface antigen and antibody tests prior to entry in the fall of the first and second years of the program. It is strongly recommended that all students admitted to the program receive the Hepatitis B vaccine. Students in the program are responsible for transportation to and from agencies utilized for clincal experiences, purchase of student uniforms and accessories, and purchase of required student instrument kit.

Curriculum Completion Guidelines:

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 five semesters, students achieving grades lower than C have not demonstrated competency in that subject matter necessary for continuing the following semester. Policies for clinical, laboratory, and didactic progress are defined further in the program policy manual.

continued

Dental Hygiene Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
DNH 111	Oral Anatomy	2	0	2
DNH 115	Histology/Head and Neck Anatomy	3	0	3
DNH 120	Management of Emergencies	1	0	1
DNH 141	Dental Hygiene I	3	6	5
ENG 111	English Composition (or ENG 101)	3	0	3
BIO 141	Human Anatomy and Physiology I	3	2	4
STD 100	Orientation	1	0	1
	Total	16	8	19
	Second Semester			
DNH 131	Oral Radiography for the Dental Hygienist	1	3	2
DNH 142	Dental Hygiene II	1	12	5
DNH 145	General and Oral Pathology	2	0	2
DNH 146	Periodontics for the Dental Hygienist	2	0	2
BIO 142	Human Anatomy and Physiology II	3	2	4
NAS 180	Introduction to Microbiology	2	2	3
	Total	11	19	18
	Summer Session			
DNH 190	Coordinated Practice (variable credit)	2	3	3
DNH 150	Nutrition	2	0	2
DNH 210	Application of Periodontics	1	0	1
CHM 111	College Chemistry I	3	3	4
	Total	8	6	10
	Second-Year Curriculum			
	Third Semester			
DNH 215	Dental Materials	2	3	3
DNH 216	Pharmacology	2	0	2
DNH 221	Community Health I	1	0	1
DNH 244	Dental Hygiene IV	1	12	5
[1]PSY 201	Introduction to Psychology I	3	0	3
SOC 201	Introduction to Sociology I (or SOC 207)	3	0	3
	Total	12	15	17
	Fourth Semester			
[2]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
DNH 222	Community Health II	1	3	2
DNH 230	Office Practice and Ethics	1	0	1
DNH 245	Dental Hygiene V	1	12	5
CIS 116	Computers and Information Systems (or CIS 100)	1	0	1
SPD 100	Principles of Public Speaking (or ENG 102)	3	0	3
[3]E	Elective	3	0	3
	Total	11-12	15	16-17
Total Minimum Credits for Degree				81

[1]PSY 231, PSY 120, or PSY 125 may be substituted.
[2]Two credits of Health (HLT) or Physical Education (PED) are required of all students except veterans, who may substitute an elective.
[3]CHM 112 should be taken by students planning to transfer to a baccalaureate degree program.

Early Childhood Development

ASSOCIATE IN
APPLIED SCIENCE DEGREE
636

Purpose: This curriculum is designed to enable graduates to qualify as directors, assistant directors, teachers, assistant teachers, or as classroom aides in programs 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. This curriculum will prepare students for national assessment for the Child Development Associate. In addition, the student is prepared to transfer to a four-year institution in Early Childhood Education and/or Child Development.

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 on campus, 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: Evidence that the applicant possesses the intellectual, emotional, and physical capacities and the interest and aptitude necessary for relating successfully to young children. The program is open to both male and female applicants. Satisfactory performance on an appropriate test may be required of those applicants whose records indicate 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

courses are offered at child-care centers and school sites. For information on establishing such courses, consult the Early Childhood Development Staff.

Occupational Objectives: Positions in independent child-care centers and

continued

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.

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

Early Childhood Development Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
CHD 121	Childhood Educational Development I	3	0	3
[1]CHD 165	Observation and Participation in Early Childhood Settings	1	8	3
CHD 125	Creative Activities for Children	2	2	3
PSY 235	Child Psychology	3	0	3
ENG 111	College Composition I (or ENG 101)	3	0	3
STD 100	Orientation	1	0	1
	Total	13	10	16
	Second Semester			
CHD 122	Childhood Educational Development II	3	0	3
[1]CHD 165	Observation and Participation in Early Childhood Settings	1	8	3
CHD 166	Infant and Toddler Programs	3	0	3
CHD 216	Early Childhood Programs, School and Social Change	3	0	3
HLT 135	Child Health and Nutrition	3	0	3
PSY 120	Human Relations	3	0	3
	Total	16	8	18
	Second-Year Curriculum			
	Third Semester			
MTH 151	Mathematics for the Liberal Arts I (or MTH 120)	3	0	3
CHD 270	Administration of Early Childhood Educational Programs	3	0	3
SOC 215	Sociology of the Family	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
CHD 210	Introduction to Exceptional Children	3	0	3
HLT 106	First Aid and Safety	2	0	2
	Total	19	0	17
	Fourth Semester			
CHD 205	Guiding the Behavior of Young Children	3	0	3
CIS 116	Computers and Information Systems	1	0	1
CHD 126	Methods and Materials for Developing Science and Mathematical Concepts in Young Children	3	0	3
CHD 218	Child Study	3	0	3
[2]CHD 290	Coordinated Internship	0	2	2
E	Elective	3	0	3
	Total	13	2	15
Total Minimum Credits for Degree				66

[1]*Coordinate with CHD 121 and CHD 122.*
[2]*Coordinate with CHD 218 and CHD 205.*

Education

ASSOCIATE IN SCIENCE DEGREE
625

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 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 that 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.

Education Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
STD 100	Orientation	1	0	1
ENG 111	College Composition I	3	0	3
HIS 121	United States History I (or HIS 101)	3	0	3
MTH 151	Mathematics for the Liberal Arts I (or MTH 171)	3	0	3
BIO 101	General Biology I	3	3	4
[1]E	Elective	3	0	3
	Total	16	3	17
	Second Semester			
EDU 100	Introduction to Education	1	0	1
MTH 152	Mathematics for the Liberal Arts II (or MTH 271)	3	0	3
ENG 112	College Composition II	3	0	3
HIS 122	United States History II (or HIS 102)	3	0	3
BIO 102	General Biology II	3	3	4
[1]E	Elective	3	0	3
	Total	16	3	17

continued

Second-Year Curriculum

Third Semester

[2]ECO 201	Principles of Economics I	3	0	3
PSY 201	Introduction to Psychology I	3	0	3
ENG 241	Survey of American Literature (or ENG 243)	3	0	3
[3]E	Humanities Elective	3	0	3
CIS 100	Introduction to Information Systems	3	0	3
	Total	15	0	15

Fourth Semester

[2]ECO 202	Principles of Economics II	3	0	3
PSY 202	Introduction to Psychology II	3	0	3
ENG 242	Survey of American Literature (or ENG 244)	3	0	3
[4]HLT 110	Concepts of Personal and Community Health	2	0	2
[1]E	Elective	2-3	0	2-3
SPD 100	Principles of Public Speaking	3	0	3
	Total	16-17	0	16-17

Total Minimum Credits for Degree 65

[1]Electives must be chosen from transfer electives listed on page 32.
[2]A two-semester sequence in another social science (PLS or SOC) may be substituted.
[3]Humanities elective must be chosen from humanities transfer electives listed on page 32.
[4]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

Education Secretary

(Career Studies)
020

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

Education Secretary Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ACC 01	Bookkeeping	2	2	3
OAD 172	Human Relations	3	0	3
OFT 100	Office Skills Review	3	0	3
OFT 138	Educational Office Procedures and Records Management	3	0	3
	Total	11	2	12
	Second Semester			
EDU 149	History and Philosophy of Education for School Secretaries	3	0	3
[1]CIS 100	Introduction to Information Systems	3	0	3
[2]E	Elective	3	0	3
	Total	9	0	9

Total Minimum Credits for Career Studies Certificate 21

[1]CIS 100 or CIS 110 may be substituted.
[2]OFT elective to be selected with departmental approval.

Electrical/Electronics Engineering Technology

ASSOCIATE IN APPLIED SCIENCE DEGREE
941

Purpose: The five-semester 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 that 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 (hardware and software) industry and the most recent developments in the electrical power and communications industries.

First-year students receive instruction in English, 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 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.

Occupational Objectives: Electronics technician; computer system field technician; power and control system technician; broadcast electronics technician; and communication technician.

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 will be recommended for students with deficiencies in English and mathematics.

Accreditation: This program has been accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Electrical/Electronics Engineering Technology Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
EGR 100	Engineering Technology Orientation	0	2	1
E	Elective	3	0	3
[1]ENG 101	Practical Writing I	3	0	3
ETR 131	Electrical Circuits I	4	3	5
MTH 113	Engineering Technical Mathematics I	5	0	5
STD 100	Orientation	1	0	1
	Total	16	5	18
	Second Semester			
ENG 102	Practical Writing II	3	0	3
ETR 132	Electrical Circuits II	4	3	5
[2]HLT/PED	Health or Physical Education Elective	1	0	1
MTH 114	Engineering Technical Mathematics II	5	0	5
PHY 201	General College Physics I	3	3	4
	Total	16	6	18

continued

Summer Session

ELE 119	Electrical Shop Practices	0	3	1
ELE 211	Electrical Machines I	4	3	5
ETR 280	Introduction to Digital Logic Circuits and Computers	3	3	4
HLT/PED	Health or Physical Education Electives	1	0	1
	Total	8	9	11

Second-Year Curriculum

Third Semester

ETR 251	Electronic Devices and Circuit Analysis I	5	3	6
ETR 265	Advanced Microprocessors	4	3	5
PHY 202	General College Physics II	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	15	9	18

Fourth Semester

ETR 220	Introduction to Communication Systems	4	3	5
ETR 252	Electronic Devices and Circuit Analysis II	5	3	6
ETR 276	Computer Controls	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	15	9	18

Total Minimum Credits for Degree 83

[1]*ENG 111-112 with SPD 100 as elective is recommended for students who plan to transfer.*
[2]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[3]*A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*

Electrical Engineering Technology

ASSOCIATE IN APPLIED SCIENCE DEGREE
941
Part-time Evening Program

Purpose: The purpose of this curriculum is to provide a comprehensive program of instruction in General Electronics to those who are currently employed and cannot participate in a full-time day program. The curriculum has been planned for part-time evening students. The core and bulk of the supporting courses offered in this evening program are identical in content and rigor with those required in the five-semester day program, but the evening program is equivalent to four semesters and does not provide the same degree of specialization as the longer five-semester curriculum.

Upon completion of the degree requirements, the student may either enter full-time employment or transfer to a college or university that offers a baccalaureate degree in Engineering Technology.

Occupational Objectives: Electronic technician; computer-system electronics technician; field, power, and control system technician; broadcast electronics technician; and communication technician.

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 Engineering Technology Curriculum
Evening Program

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ETR 131	Electrical Circuits I	4	3	5
MTH 113	Engineering Technical Mathematics I	5	0	5
	Total	9	3	10
	Second Semester			
ETR 132	Electrical Circuits II	4	3	5
MTH 114	Engineering Technical Mathematics II	5	0	5
	Total	9	3	10
	Third Semester			
EGR 100	Engineering Technology Orientation	0	2	1
	Total	0	2	1
	Fourth Semester			
ETR 251	Electronic Devices and Circuit Analysis I	5	3	6
	Total	5	3	6
	Fifth Semester			
ETR 252	Electronic Devices and Circuit Analysis II	5	3	6
	Total	5	3	6
	Sixth Semester			
ELE 119	Electrical Shop Practices	0	3	1
ETR 280	Introduction to Digital Logic Circuits and Computers	3	3	4
	Total	3	6	5
	Seventh Semester			
ETR 211	Electrical Machines	4	3	5
	Total	4	3	5
	Eighth Semester			
ETR 241	Electronic Communications I	3	3	4
	Total	3	3	4
ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER				
E	Elective	3	0	3
[1]ENG 101	Practical Writing I	3	0	3
[1]ENG 102	Practical Writing II	3	0	3
[2]HLT/PED	Health or Physical Education Elective	2	0	
PHY 201	General College Physics I	3	3	4
PHY 202	General College Physics II	3	3	4
[3]E	Social Science Elective	3	0	3
[3]E	Social Science Elective	3	0	3
STD 100	Orientation	1	0	1
	Total	24	6	26
Total Minimum Credits for Degree				73

[1]ENG 111-112 with SPD 100 as elective is recommended for students who plan to transfer.
[2]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.
[3]A two-semester sequence in a social science is required.

Electrical Wiring

(Career Studies)
056

Purpose: This Certificate in Electrical Wiring is designed to meet the 240 clock hours of formal training necessary for certification as a Journeyman Electrician. In addition to the 240 clock hours of formal instruction, four years of practical experience are required before one can take the Journeyman Exam. This program will give the student the classroom knowledge needed to enter the Electrical Construction and Maintenance field as a helper or apprentice.

Occupational Objectives: Plant Electrician, Electrician, Estimator

Curriculum Admission Guidelines: Proficiency in high school English and mathematics. Developmental courses will be required for students with deficiencies in English and mathematics.

Electrical Wiring Curriculum
(Career Studies)

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
BLD 111	Blueprint Reading and the Building Code	2	2	3
ELE 133	Practical Electricity I	2	2	3
	Total	4	4	6
	Second Semester			
ELE 110	Home Electric Power	2	2	3
ELE 134	Practical Electricity II	2	2	3
	Total	4	4	6
	Third Semester			
ELE 138	National Electrical Code	2	0	2
	Total	2	0	2
Total Credits Required for Career Studies Certificate				14

Electronic Servicing

(Career Studies)
009

Purpose: The career studies program in Electronic Servicing is designed to prepare a student for full-time employment in the servicing of electronic systems ranging from digital computers and TVs to audiovisual equipment. The curriculum involves three semesters of study and practice in the specific technical subjects that are required for competence in this field. There are no general education courses required in this curriculum.

Occupational Objectives: Home entertainment equipment service technician; cable system technician; computer repair technician; and audiovisual equipment repair technician.

Curriculum Admission Guidelines: Proficiency in high school English and completion of Algebra I. Developmental courses will be required 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 Semester			
ELE 119	Electrical Shop Practices	0	3	1
ETR 100	Electronic Problem-Solving Laboratory	0	3	1
ETR 113	DC and AC Fundamentals	3	3	4
RTV 124	TV Electronics	3	3	4
	Total	6	12	10
	Second Semester			
ETR 123	Electronic Applications I	1	2	2
ETR 141	Electronics I	3	0	3
RTV 121	Advanced Servicing and Trouble-Shooting Techniques I	3	6	5
	Total	7	8	10
	Third Semester			
ETR 142	Electronics II	3	0	3
ETR 199	Supervised Study	0	3	1
ETR 285	Fundamentals of Microcomputer Repair	3	3	4
ETR 190	Coordinated Internship	0	5	1
	Total	6	11	9
Total Minimum Credits for Certificate				29

Engineering

ASSOCIATE IN SCIENCE DEGREE
831

Purpose: Engineers are the planners and designers of the technological systems that are the backbone of our modern society. They apply principles of science and mathematics to meet the needs or solve the problems of humankind. These problems typically are multifaceted and involve the interplay of technological, economic, environmental, sociological, and political components. For this reason, the engineer requires a background in the humanities and social sciences as well as in mathematics and the natural sciences.

The Associate in Science Degree program in Engineering is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree. The following engineering fields are supported by this program: aerospace, agriculture, building construction, ceramics, chemical, civil, electrical, industrial, mechanical, metallurgical, mining, and 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 that 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, 5 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 Semester			
CHM 111	College Chemistry I	3	3	4
EGR 115	Engineering Graphics	1	3	2
EGR 120	Introduction to Engineering	2	0	2
ENG 111	College Composition I	3	0	3
[1]HLT/PED	Health or Physical Education	1-2	0	1-2
MTH 173	Calculus with Analytic Geometry I	5	0	5
STD 100	Orientation (or approved STD elective)	1	0	1
	Total	16-17	6	18-19
	Second Semester			
CHM 112	College Chemistry II	3	3	4
EGR 125	Introduction to Engineering Methods	3	0	3
EGR 140	Engineering Mechanics - Statics	3	0	3
ENG 112	College Composition II	3	0	3
MTH 174	Calculus with Analytic Geometry II	5	0	5
	Total	17	3	18

Second-Year Curriculum

Third Semester

ECO 201	Principles of Economics I	3	0	3
EGR 245	Engineering Mechanics - Dynamics	3	0	3
[1]HLT	Health or Physical Education	1-2	0	1-2
[2]E	History Elective	3	0	3
MTH 275	Vector Calculus and Linear Algebra	4	0	4
PHY 241	University Physics I	3	3	4
	Total	17-18	3	18-19

Fourth Semester

ECO 202	Principles of Economics II	3	0	3
[3]E	Elective	3	0	3
EGR 246	Mechanics of Materials	3	0	3
MTH 291	Differential Equations	3	0	3
PHY 222	Engineering Physics II	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
	Total	18	0	18

Total Minimum Credits for Degree..... 72

[1]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2]*A history elective must be chosen from the following: HIS 101, 102, 121, or 122.*
[3]*Elective must be chosen from list of transfer electives on page 32.*

Engineering/Technical Assistant

(Certificate)
966

Purpose: The Engineering/Technical Assistant program is designed to accommodate the needs of a variety of industrial workers (or candidates for employment) who require formal training in specific technical areas to maintain their current job status or to qualify for advancement. The curriculum provides a framework of general education and fundamental technical courses and leaves opportunity for the student to select additional courses from a large number of technical electives. Students are strongly encouraged to plan their program selections with the careful supervision and approval of a faculty advisor.

Occupational Objectives: Entry-level or advanced positions in various industrial firms or organizations.

Curriculum Admissions 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 Semester			
DRF 111	Technical Drafting I	1	3	2
EGR 100	Engineering Technology Orientation	0	2	1
ENG 101	Practical Writing I	3	0	3
MTH 103	Basic Technical Mathematics I	5	0	5
[1]E	Social Science Elective	3	0	3
[2]E	Approved Technical Elective	2-3	0	2-3
STD 100	Orientation	1	0	1
	Total	15	5	17

continued

Second Semester

DRF 112	Technical Drafting II	1	3	2
DRF 201	Computer-Aided Drafting and Design I	1	3	2
ENG 102	Practical Writing II	3	0	3
MTH 113	Engineering Technical Mathematics I	5	0	5
[1]E	Social Science Elective	3	0	3
[2]E	Approved Technical Elective	3	0	3
	Total	16	6	18

Total Minimum Credits for Certificate 35

[1] *A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*
[2] *Technical elective to be selected with department approval.*

Firefighting and Prevention

(Career Studies)
051

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

Firefighting and Prevention Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ENG 131	Technical Reporting Writing I	3	0	3
PSY 126	Psychology for Business and Industry	3	0	3
FIR 106	Fire Suppression Methods and Operations	3	0	3
	Second Semester			
FIR 111	Hazardous Materials I	3	0	3
FIR 125	Fire Service Administration	3	0	3
	Third Semester			
FIR 221	Building Construction and Codes	3	2	4
FIR 230	Investigation Procedures	3	0	3
	Total	21	2	22

Minimum Credits for Certificate 22

Floral Design and Indoor Plant Care

(Career Studies)
013

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
	First Semester			
HRT 260	Introduction to Floral Design	2	2	3
HRT 247	Indoor Plants	1	2	2
	Total	3	4	5
	Second Semester			
HRT 236	Interior Landscaping	1	2	2
HRT 265	Professional Floral Design and Shop Management	2	2	3
	Total	3	4	5
	Third Semester			
HRT 267	Silk and Dried Flower Arranging	1	2	2
[1]E	Horticultural Elective	2	2	3
	Total	3	4	5
Total Minimum Credits for Certificate				15

[1] *To be selected with departmental approval.*

General Studies

ASSOCIATE IN SCIENCE DEGREE
699

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 that 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 that 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, reading, and/or mathematics.

continued

General Studies Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ENG 111	College Composition I	3	0	3
STD 100	Orientation	1	0	1
[1]HIS 121	United States History I (or HIS 101)	3	0	3
[2]MTH 151	Mathematics for the Liberal Arts I (or MTH 171)	3	0	3
[3]E	Natural Science Elective	3	3	4
[4]E	Elective	3	0	3
	Total	16	3	17
	Second Semester			
ENG 112	College Composition II	3	0	3
[1]HIS 122	United States History II (or HIS 102)	3	0	3
[2]MTH 152	Mathematics for the Liberal Arts II (or MTH 271 or Elective)	3	0	3
[3]E	Natural Science Elective	3	3	4
[4]E	Elective	3	0	3
	Total	15	3	16
	Second-Year Curriculum			
	Third Semester			
ENG 241	Survey of American Literature I OR			
ENG 243	Survey of English Literature I	3	0	3
PSY 201	Introduction to Psychology I	3	0	3
SPD 100	Principles of Public Speaking (or SPD 105)	3	0	3
[5]E	Social Science Elective	3	0	3
[4]E	Elective	3	0	3
[6]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
	Total	17	0	17
	Fourth Semester			
ENG 242	Survey of American Literature II or			
ENG 244	Survey of English Literature II	3	0	3
PSY 202	Introduction to Psychology II	3	0	3
[5]E	Social Science Elective	3	0	3
[4]E	Elective	3	0	3
[4]E	Elective	3	0	3
	Total	15	0	15
Total Minimum Credits for Degree				65

[1]A two-semester sequence of HIS 121-122 or HIS 101-102 must be completed.
[2]A two-semester sequence of MTH 151-152 or MTH 171-271 must be completed for transfer; othewise, a student may complete either MTH 151 or MTH 171.
[3]A two-semester sequence selected from BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202 must be completed for transfer; otherwise, only one semester of science is required if a one-semester course in MTH 151 or MTH 171 has been completed; no science is required if a two-semester sequence of MTH 151-152 or MTH 171-172 has been completed.
[4]Electives must be selected from the list of transfer courses on page 32 if the student plans to transfer; otherwise, electives may be selected from any credit courses offered by the college.
[5]Social science elective must be selected from the list of transfer courses on page 32 if the student plans to transfer; otherwise, any social science elective may be selected.
[6]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

Horticulture

ASSOCIATE IN
APPLIED SCIENCE DEGREE
335

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. Three short programs, Floral Design and Indoor Plant Care, Landscaping and Outdoor Plant Care, and Plant Propagation and Production 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 designer or manager of a florist shop; and 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: Specific details about transfer arrangements can be obtained from the horticulture department head.

Horticulture Technology Curriculum
Floriculture Option

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
[1]ENG 101	Practical Writing I	3	0	3
HRT 100	Introduction to Horticulture	2	2	3
HRT 115	Plant Propagation	2	2	3
MTH 120	Introduction to Mathematics	3	0	3
[2]E	Social Science Elective	3	0	3
[3]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
STD 100	Orientation	1	0	1
	Total	15-16	4	17-18
	Second Semester			
BUS 125	Applied Business Mathematics	3	0	3
[1]ENG 102	Practical Writing II	3	0	3
HRT 127	Horticultural Botany	2	2	3
HRT 226	Greenhouse Management	2	2	3
[2]E	Social Science Elective	3	0	3
[3]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
	Total	14-15	4	16-17

continued

Second-Year Curriculum

Third Semester

BUS 165	Small Business Management	3	0	3
HRT 121	Greenhouse Crop Production I	2	2	3
HRT 207	Plant Pest Management	2	2	3
HRT 247	Indoor Plants	1	2	2
HRT 260	Introduction to Floral Design	2	2	3
HRT 267	Silk and Dried Flower Arranging	1	2	2
	Total	11	10	16

Fourth Semester

CIS 116	Computer and Information Systems (or CIS 199)	1	0	1
HRT 205	Soils	2	2	3
HRT 236	Interior Landscaping	1	2	2
HRT 265	Professional Floral Design and Shop Management	2	2	3
HRT 297	Cooperative Education (or HRT 296)	0	6	2
MKT 100	Principles of Marketing (or MKT 110)	3	0	3
E	Elective	2-3	0	2-3
	Total	11-12	12	16-17

Total Minimum Credits for Degree 65

[1]ENG 111-112 and SPD 100 as elective should be taken by students planning to transfer.
[2]A two-semester sequence in social science or two of the following: PSY 120, ECO 120, or PLS 130.
[3]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

Horticulture Technology Curriculum
Landscape Grower Option

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
[1]ENG 101	Practical Writing I	3	0	3
HRT 100	Introduction to Horticulture	2	2	3
HRT 115	Plant Propagation	2	2	3
MTH 120	Introduction to Mathematics	3	0	3
[2]E	Social Science Elective	3	0	3
[3]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
STD 100	Orientation	1	0	1
	Total	15-16	4	17-18
	Second Semester			
BUS 125	Applied Business Mathematics	3	0	3
[1]ENG 102	Practical Writing II	3	0	3
HRT 127	Horticultural Botany	2	2	3
HRT 226	Greenhouse Management	2	2	3
[2]E	Social Science Elective	3	0	3
[3]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
	Total	14-15	4	16-17

Second-Year Curriculum

Third Semester

BUS 165	Small Business Management	3	0	3
CIS 116	Computers and Information Systems (or CIS 199)	1	0	1
HRT 201	Landscape Plant Materials I	2	2	3
HRT 207	Plant-Pest Management	2	2	3
HRT 225	Nursery and Garden Center Management	2	2	3
E	Elective	3	0	2-3
	Total	13	6	15-16

Fourth Semester

HRT 202	Landscape Plant Materials II	2	2	3
HRT 205	Soils	2	2	3
HRT 235	Landscape Drawing	2	3	3
HRT 275	Landscape Construction and Maintenance	2	2	3
HRT 297	Cooperative Education	0	6	2
MKT 100	Principles of Marketing (or MKT 110)	3	0	3
	Total	11	15	17

Total Minimum Credits for Degree 65

[1]*ENG 111-112 and SPD 100 as elective should be taken by students planning to transfer.*
[2]*A two-semester sequence in social science or two of the following: PSY 120, ECO 120, or PLS 130.*
[3]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

Landscaping and Outdoor Plant Care

(Career Studies)
014

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

Landscaping and Outdoor Plant Care

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
HRT 201	Landscape Plant Materials I	2	2	3
HRT 207	Plant Pest Management	2	2	3
	Total	4	4	6
	Second Semester			
HRT 235	Landscape Drawing	2	2	3
HRT 202	Landscape Plant Materials II	2	2	3
HRT 275	Landscape Construction and Maintenance	2	2	3
	Total	6	6	9

Total Minimum Credits for Certificate 15

Legal Assistant

(Certificate)
261

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
	First Semester			
ECO 120	Survey of Economics	3	0	3
PLS 135	American National Politics	3	0	3
LGL 115	Real Estate Law	3	0	3
STD 100	Orientation	1	0	1
	Total	10	0	10
	Second Semester			
LGL 116	Domestic Relations and Consumer Law	3	0	3
LGL 125	Legal Research	3	0	3
LGL 126	Legal Writing	3	0	3
	Total	9	0	9
	Third Semester			
LGL 226	Real Estate Abstracting	3	0	3
LGL 227	Administration of Decedents' Estates	3	0	3
	Total	6	0	6
	Fourth Semester			
LGL 236	Legal Corporate Law	3	0	3
LGL 237	Law of Income Taxation	4	0	4
	Total	7	0	7
Total Minimum Credits for Certificate				32

Legal Assisting

ASSOCIATE IN
APPLIED SCIENCE DEGREE
260

Purpose: The curriculum is designed to provide an individual with a sufficient level of knowledge, understanding, and proficiency to perform tasks in meeting the needs of clients that can be performed by a trained paraprofessional working under the direction and supervision of a lawyer. A Legal Assistant will have a basic understanding of the general process of American law and will have the knowledge and proficiency to perform specific tasks under the supervision of a lawyer in the fields of criminal and civil law.

Occupational Objectives: Include employment in public and in private, both individual and corporate, law-related activities, organizations, and agencies.

Curriculum Admissions Guidelines: Proficiency in high school English and completion of high school or college mathematics equivalent to Algebra I.

Legal Assisting Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ACC 211	Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
ENG 111	College Composition	3	0	3
MTH 120	Introduction to Mathematics	3	0	3
LGL 110	Introduction to Law & the Legal Assistant	3	0	3
CIS 100	Computer and Information Systems	1	0	1
STD 100	Orientation	1	0	1
	Total	14	2	15
	Second Semester			
[1]HLT 110	Concepts of Personal & Community Health	1-2	0	1
SPD 105	Oral Communications	3	0	3
LGL 115	Real Estate Law	3	0	3
LGL 126	Legal Writing	3	0	3
LGL 225	Estate Planning and Probate	3	0	3
PSY 120	Human Relations	3	0	3
	Total	16-17	0	16
	Second Year Curriculum			
	Third Semester			
E 116	Social Science Elective	3	0	3
LGL 116	Domestic Relations and Consumer Law	3	0	3
LGL 227	Administration of Decedent's Estate	3	0	3
E	Legal Administration Elective	1-2	0	1
LGL 230	Legal Transaction	3	0	3
	Total	13-14	0	13
	Fourth Semester			
[2]E	Elective	3	0	3
LGL 236	Legal Corporate Law	3	0	3
LGL 237	Income Taxation	4	0	4
E	Legal Administration Elective	3	0	3
E	Legal Administration Elective	3	0	3
	Total	16	0	16
Total Minimum Credits for Degree				60

[1] *Two credits of Health (HLT) or Physical Education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Elective may be any 100 or above-level course.*

Liberal Arts

ASSOCIATE IN ARTS DEGREE
648

Purpose: The curriculum is designed for persons who plan to transfer to a four-year program to complete a baccalaureate degree, 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, or 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 that 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, reading, and/or mathematics.

Liberal Arts Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ENG 111	College Composition I	3	0	3
STD 100	Orientation	1	0	1
HIS 101	History of Western Civilization I (or HIS 121)	3	0	3
MTH 151	Mathematics for the Liberal Arts I (or MTH 171)	3	0	3
[1]E	Natural Science Elective	3	3	4
[2]E	Foreign Language Elective	4	0	4
	Total	17	3	18
	Second Semester			
ENG 112	College Composition II	3	0	3
HIS 102	History of Western Civilization II (or HIS 122)	3	0	3
MTH 152	Mathematics for the Liberal Arts II (or MTH 271)	3	0	3
[1]E	Natural Science Elective	3	3	4
[2]E	Foreign Language Elective	4	0	4
	Total	16	3	17
	Second-Year Curriculum			
	Third Semester			
ENG 241 ENG 243	Survey of American Literature I OR Survey of English Literature I	3	0	3
[2]E	Foreign Language Elective	4	0	4
[3]E	Social Science Elective	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
[4]E	Elective	2-3	0	2-3
	Total	15-16	0	15-16

Fourth Semester

ENG 242	Survey of American Literature II OR			
ENG 244	Survey of English Literature II	3	0	3
[2]E	Foreign Language Elective	4	0	4
[3]E	Social Science Elective	3	0	3
[4]E	Elective	3	0	3
[5]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
	Total	15	0	15

Total Minimum Credits for Degree 65

[1]*Natural science elective must include a two-semester sequence of BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202.*

[2]*Foreign Language electives must be selected from French, German, or Spanish. Completion of intermediate level is required for graduation. If the beginning level is not taken because of prior learning, 8 credit hours must be made up from the list of transfer electives on page 32.*

[3]*Social science elective must be chosen from the social science transfer electives on page 32.*

[4]*Electives must be chosen from the list of transfer electives on page 32.*

[5]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

Liberal Arts

ASSOCIATE IN ARTS DEGREE
(Specilization: Fine Arts)
529

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 that 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, reading, and/or mathematics.

Fine Arts Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ART 121	Drawing I	1	4	3
[1]E	Foreign Language Elective	4	0	4
MTH 151	Mathematics for the Liberal Arts I (or MTH 171)	3	0	3
ENG 111	College Composition I	3	0	3
STD 100	Orientation	1	0	1
HIS 101	History of Western Civilization I (or HIS 121)	3	0	3
	Total	15	4	17

continued

Second Semester

ART 122	Drawing II	1	4	3
[1]E	Foreign Language Elective	4	0	4
MTH 152	Mathematics for the Liberal Arts II (or MTH 271)	3	0	3
ENG 112	College Composition II	3	0	3
HIS 102	History of Western Civilization II (or HIS 122)	3	0	3
[2]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
	Total	16	4	18

Second-Year Curriculum

Third Semester

ART 131	Fundamentals of Design I	1	4	3
[1]E	Foreign Language Elective	4	0	4
[3]E	Social Science Elective	3	0	3
[4]E	Natural Science Elective	3	3	4
ENG 241 ENG 243	Survey of American Literature I OR Survey of English Literature I	3	0	3
	Total	14	7	17

Fourth Semester

[1]E	Foreign Language Elective	4	0	4
[3]E	Social Science Elective	3	0	3
[4]E	Natural Science Elective	3	3	4
[5]E	Elective	2-3	0	2-3
SPD 100	Principles of Public Speaking (or SPD 105)	3	0	3
	Total	15-16	3	16-17

Total Minimum Credits for Degree 68

[1]*Foreign language electives must be chosen from French, German, or Spanish. Completion of intermediate level required for graduation. If the beginning level is not taken because of prior learning, ART 101-102 are recommended.*

[2]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

[3]*A two-semester sequence of social science must be chosen from PSY 201-202, ECO 201-202, PLS 211-212, GEO 200 & 210, HIS 101-102, HIS 121-122, or SOC 201-202.*

[4]*A two-semester sequence of natural science must be chosen from BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202.*

[5]*Electives must be chosen from the list of transfer electives on page 32.*

Management

(Banking and Finance, Real Estate, Merchandising)
Associate In
Applied Science Degree
212

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, and 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 mathematics.

continued

Management Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 115	Keyboarding for Information Processing (or OFT 111)	3	0	3
STD 100	Orientation	1	0	1
	Total	16	2	17
	Second-Year Curriculum Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
BUS 150	Principles of Management (or BUS 111 or 165)	3	0	3
CIS 150	Introduction to Microcomputer Software	2	2	3
[1]HLT 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
SPD 105	Oral Communication	3	0	3
	Total	16	4	18
	Second Year Curriculum Semester			
	Third Semester			
ACC 261	Principles of Federal Taxation I	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	3	0	3
ECO 201	Principles of Economics I	3	0	3
OFT 205	Business Communications	3	0	3
	Total	15	0	15
	Fourth Semester Semester			
BUS 242	Business Law II	3	0	3
CIS 157	Microcomputer Spreadsheet Software	2	2	3
FIN 215	Financial Management	3	0	3
MKT 100	Principles of Marketing	3	0	3
[2]ECO 202	Principles of Economics II	3	0	3
[3]E	Elective	3	0	3
	Total	17	2	18
Total Minimum Credits for Degree				68

[1]Two credits of health (HLT) or physical education (PED) are requied of all students except veterans, who may substitute an elective.
[2]An elective may be substituted for ECO 202; the elective must be selected from history, political science, psychology, sociology, or social science.
[3]Elective may be any 100 or above level course.

Management Curriculum (Real Estate)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 115	Keyboarding for Information Processing (or OFT 111)	3	0	3
STD 100	Orientation	1	0	1
	Total	18	2	19
	Second Semester Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
BUS 150	Principles of Management (or BUS 111 or 165)	3	0	3
CIS 150	Introduction to Microcomputer Software	2	2	3
REA 100	Principals of Real Estate	4	0	4
	Total	15	4	17
	Second-Year Curriculum			
	Third Semester Semester			
ACC 261	Principles of Federal Taxation I	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	3	0	3
ECO 201	Principles of Economics I	3	0	3
REA 216	Real Estate Appraisal	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	18	0	18
	Fourth Semester Semester			
[2]ECO 202	Principles of Economics II	3	0	3
MKT 100	Principles of Marketing	3	0	3
REA 217	Real Estate Finance (or FIN 215)	3	0	3
REA 245	Real Estate Law (or BUS 242)	3	0	3
[3]E	Elective	3	0	3
	Total	15	0	15
	Total Minimum Credits for Degree			69

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *A social science elective may be substituted for ECO 202; the elective must be selected from history, political science, psychology, or sociology.*
[3] *Elective may be any 100 or above level course.*

Management Curriculum (Banking and Finance)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 115	Keyboarding for Information Processing (or OFT 111)	3	0	3
STD 100	Orientation	1	0	1
	Total	16	2	17
	Second Semester Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
CIS 150	Introduction to Microcomputer Software	2	2	3
FIN 110	Principles of Banking	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
SPD 105	Oral Communication	3	0	3
	Total	16	4	18
	Second-Year Curriculum Semester			
	Third Semester			
ACC 261	Principles of Federal Taxation I	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	3	0	3
ECO 201	Principles of Economics I	3	0	3
OFT 205	Business Communications	3	0	3
	Total	15	0	15
	Fourth Semester			
BUS 242	Business Law II	3	0	3
CIS 157	Microcomputer Spreadsheet Software	2	2	3
FIN 215	Financial Management	3	0	3
MKT 100	Principles of Marketing	3	0	3
[2]ECO 202	Principles of Economics II	3	0	3
[3]E	Elective	3	0	3
	Total	17	2	18
Total Minimum Credits for Degree				68

[1]*Two credits of health (HLT) or physical education (PED) are requied of all students except veterans, who may substitute an elective.*
[2]*An elective may be substituted for ECO 202; the elective must be selected from history, political science, psychology, sociology, or social science.*
[3]*Elective may be any 100 or above level course.*

Management Curriculum (Merchandising)

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 115	Keyboarding for Information Processing (or OFT 111)	3	0	3
STD 100	Orientation	1	0	1
	Total	18	2	19
	Second Semester			
ACC 212	Principles of Accounting II	3	0	3
ACC 214	Principles of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
BUS 150	Principles of Management (or BUS 111 or 165)	3	0	3
CIS 150	Introduction to Microcomputer Software	2	2	3
MKT 100	Principles of Marketing	3	0	3
	Total	14	4	16
	Second-Year Curriculum			
	Third Semester			
ACC 261	Principles of Federal Taxation I	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	3	0	3
MKT 110	Principles of Selling	3	0	3
ECO 201	Principles of Economics I	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	18	0	18
	Fourth Semester			
BUS 242	Business Law II	3	0	3
[2]ECO 202	Principles of Economics II	3	0	3
FIN 215	Financial Management	3	0	3
MKT 220	Principles of Advertising	3	0	3
[3]E	Elective	3	0	3
	Total	15	0	15
Total Minimum Credits for Degree				68

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *An elective may be substituted for ECO 202; the elective must be selected from history, political science, psychology, sociology, or social science.*
[3] *Elective may be any 100 or above level course.*

Mechanical Engineering Technology

Associate In
Applied Science Degree
956

Purpose: The Mechanical Engineering Technology program is designed to give the student broad experience and training in the basic concepts of the mechanical engineering technology field. In addition to the general education and fundamental mechanical technology courses (drafting, statics, strength of materials, basic machine tool, etc.), this program offers courses in machine design and in computer numeric control applications.

Graduates may seek immediate employment or consider opportunities available to transfer to Bachelor of Technology programs offered by some four-year colleges and 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; and training and education.

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.

continued

Mechanical Engineering Technology Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
DRF 111	Technical Drafting I	1	3	2
E	Elective	3	0	3
EGR 100	Engineering Technology Orientation	0	2	1
[1]ENG 101	Practical Writing I	3	0	3
MEC 120	Principles of Machine Technology	2	3	3
MTH 113	Engineering Technical Mathematics I	5	0	5
STD 100	Orientation	1	0	1
	Total	15	8	18
	Second Semester			
DRF 112	Technical Drafting II	1	3	2
ELE 150	A.C. and D.C. Circuit Fundamentals	2	3	3
[1]ENG 102	Practical Writing II	3	0	3
MEC 118	Automated Manufacturing Technology	1	3	2
MEC 131	Mechanics I—Statics for Engineering Technology	3	0	3
MTH 114	Engineering Technical Mathematics II	5	0	5
	Total	15	9	18
	Second-Year Curriculum			
	Third Semester Semester			
[2]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
MEC 132	Mechanics II-Strength of Materials for Engineering Technology	3	0	3
MEC 213	Machine Design I	4	0	4
MEC 265	Fluid Mechanics	3	0	3
PHY 201	General College Physics I	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	17-18	3	18-19
	Fourth Semester Semester			
DRF 201	Computer Aided Drafting and Design I	1	3	2
[2]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
MEC 214	Machine Design II	4	0	4
MEC 256	Thermodynamics	3	0	3
PHY 202	General College Physics II	3	3	4
[3]E	Social Science Elective	3	0	3
	Total	15-16	6	17-18
Total Minimum Credits for Degree				71

[1]ENG 111-112 with SPD 100 as elective is recommended for students who plan to transfer.
[2]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.
[3]A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

Medical Transcriptionist

(Certificate)
286

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 Semester			
STD 100	Orientation	1	0	1
ENG 101	Practical Writing I	3	0	3
HLT 143	Medical Terminology I	3	0	3
BIO 145	Human Anatomy and Physiology for the Health Sciences	4	3	5
[1]OFT 112	Keyboarding/Typewriting II	3	0	3
PSY 120	Human Relations	3	0	3
	Total	17	3	18
	Second Semester Semester			
ENG 102	Practical Writing II	3	0	3
HLT 144	Medical Terminology II	2	0	3
OFT 241	Machine Transcription I	3	0	3
MDR 190	Coordinated Practice in Medical Transcription	0	10	2
OFT 216	Processing Procedures	3	0	3
	Total	11	10	14

Second-Year Curriculum

Third Semester Semester

MDR 190	Coordinated Practice in Medical Transcription	0	25-C	5
MDR 196	On-site Training in Medical Transcription	0	15-C	3
	Total	0	40-C	8

Total Minimum Credits for Degree 40

[1] *High school typing or a satisfactory score (minimum of 25 wpm) on a keyboarding skill examination required.*

Mental Health

ASSOCIATE IN APPLIED SCIENCE DEGREE
154

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 occupational needs, students may choose either the clinical track or the optional transfer track. Students in the **clinical track** participate in a great 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 Technology
(Clinical Track)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
ENG 101	Practical Writing I	3	0	3
STD 100	Orientation	1	0	1
MEN 100	Introduction to Mental Health	3	0	3
MEN 101	Mental Health Skill Training I	3	0	3
PSY 220	Introduction to Behavior Modification	3	0	3
MTH 120	Introduction to Mathematics (or MTH 151)	3	0	3
	Total	16	0	16

continued

Second Semester

ENG 102	Practical Writing II	3	0	3
MEN 102	Mental Health Skill Training II	3	0	3
MEN 110	Introduction to Abnormal Psychology	3	0	3
MEN 225	Counseling Therapy	3	0	3
MEN 290	Coordinated Internship	0	15	5
	Total	12	15	17

Second-Year Curriculum

Third Semester

MEN 221	Group Process I	3	0	3
MEN 290	Coordinated Internship	0	15	5
MEN 245	Problems in Aging	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
PSY 201	Introduction to Psychology I	3	0	3
	Total	11	15	16

Fourth Semester

MEN 222	Group Process II	3	0	3
MEN 290	Coordinated Internship	0	15	5
E	Elective	3	0	3
E	Elective	3	0	3
PSY 202	Introduction to Psychology II	3	0	3
	Total	12	15	17

Total Minimum Credits for Degree 66

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

Mental Health Technology Curriculum (Optional Track)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First Year Curriculum			
	First Semester			
ENG 111	College Composition I	3	0	3
MEN 100	Introduction to Mental Health	3	0	3
MEN 101	Mental Health Skill Training I	3	0	3
MTH 151	Mathematics for the Liberal Arts	3	0	3
PSY 220	Introduction to Behavior Modification	3	0	3
STD 100	Orientation	1	0	1
	Total	16	0	16
	Second Semester			
ENG 112	College Composition II	3	0	3
MEN 102	Mental Health Skill Training II	3	0	3
[3]MEN 110	Introduction to Abnormal Psychology	3	0	3
[3]MEN 225	Counseling Therapy	3	0	3
MEN 290	Coordinated Internship	0	15	5
	Total	12	15	17

Third Semester

[2]HLT 110	Concepts of Personal and Community Health	2	0	2
MEN 221	Group Process I	3	0	3
MEN 245	Problems in Aging	3	0	3
[1]MEN 290	Coordinated Internship (or Electives)	0	15	5
PSY 201	Introduction to Psychology I (or PED)	3	0	3
	Total	11	15	16

Fourth Semester

E	Elective	3	0	3
E	Elective	3	0	3
CIS 100	Introduction to Information Systems	1	0	1
MEN 222	Group Process II	3	0	3
PSY 202	Introduction to Psychology II	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
	Total	16	0	16

Total Minimum Credits for Degree 65

[1]*Two transfer electives from the list on page 32 may be substituted with the permission of the program head.*
[2]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[3]*Departmental approval needed.*

Metal Processing

(Career Studies)
007

Purpose: The purpose of this program is to provide entry-level skills for new workers or upgrade the formal knowledge of those currently working in the metal processing field. The field encompasses those industries that forge, cast, machine, press, cut, or in other ways are involved in the handling and processing of metals.

The curriculum is composed entirely of applied technical subjects including welding, basic electricity, machine tool and CNC operations, and industrial safety.

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

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

Metal Processing Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
DRF 161	Blueprint Reading I	1	3	2
MAC 131	Machine Lab I	1	3	2
WEL 120	Fundamentals of Welding	1	3	2
	Total	3	9	6
	Second Semester			
ELE 126	Electrical and Shop Power Distribution	1	2	2
MEC 118	Automated Manufacturing Technology	1	3	2
WEL 121	Arc Welding I	1	3	2
	Total	3	8	6

continued

Second-Year Curriculum

Third Semester

SAF 127	Industrial Safety	2	0	2
WEL 135	Inert Gas Welding	1	3	2
	Total	3	3	4

Total Minimum Credits for Certificate 16

Microcomputer Studies

(Career Studies)
055

Occupational Objectives: The program is designed to provide proficiency in the applications of microcomputers for a variety of business and industry needs for either the first-time user or returning professional. Graduates will be qualified for jobs requiring skill in microcomputer hardware selection, operating systems, spreadsheets, database manipulation, and programming.

Microcomputer Studies Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
CIS 121	BASIC Programming	3	2	4
CIS 150	Introduction to Microcomputer Software	3	2	4
	Total	6	4	8
	Second Semester			
CIS 157	Microcomputer Spreadsheet Software	3	2	4
CIS 221	Advanced BASIC Programming	3	2	4
	Total	6	4	8
	Second-Year Curriculum			
	Third Semester			
CIS 158	Microcomputer Data Base Management Software	3	2	4
CIS 176	Computer Programming "C"	3	2	4
	Total	6	4	8
	Fourth Semester			
[1]CIS E	Elective	3-4	0	3-4
[1]CIS E	Elective	3-4	0	3-4
	Total	6-8	0	6-8

Total Minimum Credits for Certificate 30

[1]*CIS electives must be selected from:*

CIS 165 Microcomputer Communication Software
CIS 166 Microcomputer Integrated Software
CIS 265 Computer Programming: Micro Assembler Curriculum

Nursing

ASSOCIATE IN
APPLIED SCIENCE DEGREE
156

Purpose: The curriculum is designed to prepare selected students to qualify as contributing members of the health team implementing 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 National Council Licensure Exam leading to the designation of registered nurse (R.N.).

Accreditation: This program is fully accredited by the Virginia State Board of Nursing and the National League for Nursing (NLN).

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

Curriculum Admission Guidelines:

1. The applicant must hold a high school diploma or the equivalent and have completed with a grade of C or better one unit of each of the following high school subjects: chemistry, biology and Algebra I. If the applicant is deficient in these courses, Chemistry 05, Biology 101, and Math 03 may be satisfactorily completed at Virginia Western prior to acceptance into the nursing program.

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

3. The applicant will be required to take the Pax-RN (NLN Pre-Admission Examination) for a fee of $20 payable by check or money order to the National League for Nursing.

4. 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) screen and/or vaccine, tuberculin skin test (or chest x-ray), serology, and urinalysis. Hepatitis B vaccine is strongly recommended per advice of the personal physician.

5. Verification of current CPR certification will be required prior to the beginning of nursing classes.

Admission Procedure:

Upon completing an application to the college, students seeking admission to the Nursing program must complete the Health Programs Application Form available in Admissions or Counseling. Applicants must see a college counselor for information, evaluation, and advising regarding the program. Applicants next must arrange an interview with a member of the nursing faculty through the Health Technology Division Office. The nursing faculty member will submit the applicant's file and a recommendation regarding admission to the Nursing Admissions Committee. Applicants will be notified in writing of the action taken by the committee.

Applicants are admitted to the Nursing program upon completion of admission procedures. Applicants are accepted beginning January 2 until the class is filled. Early application is encouraged.

Advanced Placement:

1. LPNs may receive credit either for specified components of NUR 111 or for the entire course by scoring at least 75 on faculty-prepared examinations to be administered prior to August 1.

2. Students who have withdrawn from other nursing education programs will be considered for admission and advanced placement on an individual basis.

3. Transfer credit may be given for non-nursing courses taken at other accredited colleges.

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

Completion Guidelines:

1. 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 component.

continued

2. A complete statement of these policies is contained in the Nursing Handbook, which is provided upon admission to the program.

Student Responsibilities:

1. Transportation to and from agencies utilized for clinical experience,
2. Purchase of uniforms and accessories.
3. Provision for adequate personal health insurance.
4. Provision for student malpractice insurance.

Transfer to Baccalaureate Degree Program:

1. Registered nurses (R.N.) who are graduates of the VWCC National League for Nursing (NLN) accredited program are eligible to apply for admission with advanced placement to colleges offering a baccalaureate degree in nursing.
2. Students who are planning to transfer to a baccalaureate degree program following the A.A.S. degree are urged to consult with their faculty advisors for appropriate transfer information.

Nursing Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
NUR 111	Nursing I	7	3-L 6-C	10
ENG 111	College Composition I	3	0	3
BIO 141	Human Anatomy and Physiology I	3	2	4
STD 100	Orientation	1	0	1
	Total	14	11	18
	Second Semester			
NUR 112	Nursing II	6	12-C	10
BIO 142	Human Anatomy and Physiology II	3	2	4
NAS 180	Introduction to Microbiology	2	2	3
[1]PED	PED	1	0	1
	Total	12	16	18
	Second-Year Curriculum			
	Third Semester			
[2]SPD 105	Oral Communication	3	0	3
NUR 211	Nursing III	6	12-C	10
PSY 201	Introduction to Psychology I	3	0	3
CIS 116	Introduction to Information Systems	1	0	1
	Total	13	12	17
	Fourth Semester			
[1]PED	PED	1	0	1
NUR 212	Nursing IV	6	12-C	10
PSY 215	Abnormal Psychology	3	0	3
[3]E	Elective	3	0	3
	Total	13	12	17
Total Minimum Credits for Degree				70

[1] Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.
[2] SPD 100 is recommended for students planning to transfer to a baccalaureate degree program.
[3] ENG 112 is recommended for students planning to transfer to a baccalaureate degree program.

Nursing Assistant

(Career Studies)
012

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 be eligible to take the Nurse Aide Competency Examination leading to the designation Certified Nurse Aide (CNA).

Occupational Objectives: Nursing assistants holding certification may be employed in nursing homes, hospitals, and other medical health facilities. CNA's may be placed on registers to provide home health care for both acute and chronic patients who opt to remain at home.

Accreditation: This program is fully accredited by the Virginia State Board of Nursing.

Curriculum Admission Guidelines: Interested students are requested to contact the Health Technology Division office to place their names on the Nursing Assistant Program Admission 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

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
HLT 105	Cardiopulmonary Resuscitation	1	0	1
NUR 25	Nursing Assistant	2	4	3
NUR 95	Topics in Nursing	1	0	1
	Total	4	4	5
	Second Semester			
NUR 26	Nursing Assistant Advanced	2	3	3
NUR 90	Coordinated Practice	0	3	1
	Total	2	6	4
	Second-Year Curriculum			
	Third Semester			
NUR 27	Geriatric Nurse Aide	2	6	4
	Total	2	6	4
Total Minimum Credits for Degree				13

continued

Occupational Safety

(Career Studies)
011

Occupational Objective: The program is designed to provide knowledge and a theoretical basis required to fulfill occupational safety professional needs.

Occupational Safety

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
FIR 117	Industrial Fire Protection	3	0	3
HLT 100	First Aid and CPR	3	0	3
SAF 120	Safety & Health Standard: Regulations and Codes	3	0	3
SAF 126	Principles of Industrial Safety	3	0	3
	Total	12	0	12
	Second Semester			
SAF 131	Materials Handling, Machinery, Handtools and Control I	3	0	3
SAF 140	Introduction to Industrial Hygiene	3	0	3
SAF 215	Industrial Sound and Noise	2	2	3
SAF 225	Occupational Safety Engineering Techniques	3	0	3
	Total	11	2	12
Total Minimum Credits for Certificate				24

Office Systems Technology

(Executive, Legal, Medical, Word Processing)
ASSOCIATE IN
APPLIED SCIENCE DEGREE
294

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, legal secretary, medical secretary, stenographer, word processor, administrative assistant, or related office occupations.

Curriculum Admissions 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 or mathematics.

OFFICE SYSTEMS TECHNOLOGY CURRICULUM
(Executive Secretary)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
PSY 120	Human Relations	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 111	Keyboarding/Typewriting I	3	0	3
OFT 121	Shorthand I	4	0	4
STD 100	Orientation	1	0	1
	Total	17	0	17
	Second Semester			
BUS 150	Principles of Management	3	0	3
OFT 112	Keyboarding/Typewriting II	3	0	3
OFT 122	Shorthand II	4	0	4
OFT 241	Machine Transcription I	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	16	0	16
	Second-Year Curriculum			
	Third Semester			
BUS 241	Business Law I	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
OFT 205	Business Communications	3	0	3
OFT 216	Processing Procedures	3	0	3
OFT 221	Advanced Shorthand and Transcription I	3	0	3
OFT 251	Office Systems and Procedures	3	0	3
	Total	17	0	17
	Fourth Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
ECO 120	Survey of Economics (or ECO 201)	3	0	3
OFT 215	Executive Keyboarding/Typewriting	3	0	3
OFT 252	Office Systems and Procedures	3	0	3
[2]E	Elective	3	0	3
	Total	15	2	16
Total Minimum Credits for Degree				66

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Elective may be any 100 or above level course.*

OFFICE SYSTEMS TECHNOLOGY CURRICULUM
(Legal Secretary)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
PSY 120	Human Relations	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 111	Keyboarding/Typewriting I	3	0	3
OFT 121	Shorthand I	4	0	4
STD 100	Orientation	1	0	1
	Total	17	0	17
	Second Semester			
BUS 150	Principles of Management	3	0	3
OFT 112	Keyboarding/Typewriting II	3	0	3
OFT 122	Shorthand II	4	0	4
OFT 241	Machine Transcription I	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	16	0	16
	Second-Year Curriculum			
	Third Semester			
BUS 241	Business Law I	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
OFT 205	Business Communications	3	0	3
OFT 216	Processing Procedures	3	0	3
OFT 221	Advanced Shorthand and Transcription I	3	0	3
OFT 251	Office Systems and Procedures	3	0	3
	Total	17	0	17
	Fourth Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
ECO 120	Survey of Economics (or ECO 201)	3	0	3
OFT 215	Executive Keyboarding/Typewriting	3	0	3
OFT 252	Office Systems and Procedures	3	0	3
[2]E	Elective	3	0	3
	Total	15	2	16
Total Minimum Credits for Degree				66

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Elective may be any 100 or above level course.*

OFFICE SYSTEMS TECHNOLOGY CURRICULUM
(Medical Secretary)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
PSY 120	Human Relations	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 111	Keyboarding/Typewriting I	3	0	3
OFT 121	Shorthand I	4	0	4
STD 100	Orientation	1	0	1
	Total	17	0	17
	Second Semester			
BUS 150	Principles of Management	3	0	3
OFT 112	Keyboarding/Typewriting II	3	0	3
OFT 122	Shorthand II	4	0	4
OFT 241	Machine Transcription I	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	16	0	16
	Second-Year Curriculum			
	Third Semester			
BUS 241	Business Law I	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
HLT 143	Medical Terminology I	3	0	3
OFT 205	Business Communications	3	0	3
OFT 216	Processing Procedures	3	0	3
OFT 251	Office Systems and Procedures	3	0	3
	Total	17	0	17
	Fourth Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
ECO 120	Survey of Economics (or ECO 201)	3	0	3
OFT 215	Executive Keyboarding/Typewriting	3	0	3
OFT 252	Office Systems and Procedures	3	0	3
[2]E	Elective	3	0	3
	Total	15	2	16
Total Minimum Credits for Degree				66

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Elective may be any 100 or above level course.*

OFFICE SYSTEMS TECHNOLOGY CURRICULUM
(Word Processing)

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
PSY 120	Human Relations	3	0	3
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 171)	3	0	3
OFT 111	Keyboarding/Typewriting I	3	0	3
OFT 121	Shorthand I	4	0	4
STD 100	Orientation	1	0	1
	Total	17	0	17
	Second Semester			
BUS 150	Principles of Management	3	0	3
OFT 112	Keyboarding/Typewriting II	3	0	3
OFT 122	Shorthand II	4	0	4
OFT 241	Machine Transcription I	3	0	3
SPD 105	Oral Communication	3	0	3
	Total	16	0	16
	Second-Year Curriculum			
	Third Semester			
BUS 241	Business Law I	3	0	3
ECO 120	Survey of Economics (or ECO 201)	3	0	3
[1]HLT 110	Concepts of Personal and Community Health (or PED)	2	0	2
OFT 205	Business Communications	3	0	3
OFT 216	Processing Procedures	3	0	3
OFT 251	Office Systems and Procedures	3	0	3
	Total	17	0	17
	Fourth Semester			
ACC 211	Principles of Accounting I	3	0	3
ACC 213	Principles of Accounting Lab I	0	2	1
OFT 215	Executive Keyboarding/Typewriting	3	0	3
OFT 236	Word Processing Operation and System Operation	4	0	4
OFT 252	Office Systems and Procedures	3	0	3
[2]E	Elective	3	0	3
	Total	16	2	17
Total Minimum Credits for Degree				67

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Elective may be any 100 or above level course.*

Plant Propagation and Production

(Career Studies)
010

Occupational Objective: To prepare students for positions as plant propagators and growers in the commercial greenhouse and nursery industry.

Plant Propagation and Production Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
HRT 115	Plant Propagation	2	2	3
	Total	2	2	3
	Second Semester			
HRT 121	Greenhouse Crop Production	2	2	3
HRT 226	Greenhouse Management	2	2	3
	Total	4	4	6
	Third Semester			
HRT 207	Plant Pest Management	2	2	3
HRT 225	Nursery Management	2	2	3
	Total	4	4	6
Total Minimum Credits for Certificate				15

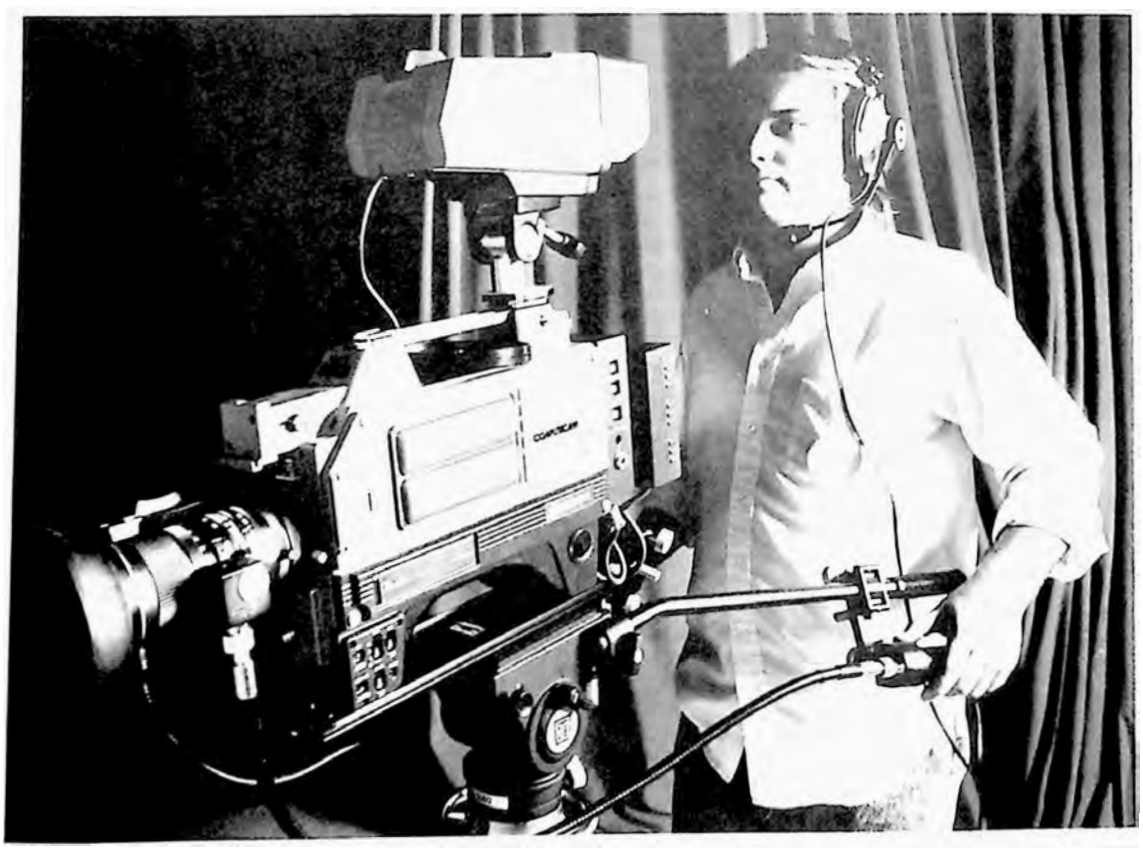
Radio and Television Production

ASSOCIATE IN
APPLIED SCIENCE DEGREE
965

Purpose: With the growth of commercial, educational, and industrial broadcasting in Virginia, the need for personnel trained in radio and television production is expanding. This curriculum is designed primarily for persons seeking immediate employment upon graduation as television studio/remote crew personnel, radio announcer and production persons, and copywriters. Related curriculum course work in broadcast history, management, advertising, contemporary social issues, and technical problems broadens the scope of student understanding of broadcast facility operation, preparing the student for career advancement once entering the work force and giving the student career options in such areas as programming, promotions, and traffic. Upon graduation the student may also transfer curriculum credits to a four-year university to attain a B.A. degree in communications, public relations, advertising, or broadcast journalism.

Occupational Objectives: Radio/TV producer/director; videographer; videotape editor; audio director; disc jockey; advertising agency assistant; 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 education goals and occupational objectives. Developmental courses may be recommended for students with deficiencies in English and mathematics.



Radio and Television Production Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
BCS 101	Introduction to Radio/TV Production I	3	3	4
BCS 111	Speech for Radio/TV I	2	3	3
BCS 125	Television Design	3	0	3
[1]ENG 101	Practical Writing I	3	0	3
MTH 151	Mathematics for the Liberal Arts I	3	0	3
STD 100	Orientation	1	0	1
	Total	15	6	17
	Second Semester			
BCS 100	Broadcasting in America	3	0	3
BCS 102	Introduction to Radio/TV Production II	3	3	4
BCS 112	Speech for Radio/TV II	2	3	3
[1]ENG 102	Practical Writing I	3	0	3
E	Elective	3	0	3
[2]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
	Total	15-16	6	17-18
	Second-Year Curriculum			
	Third Semester			
BCS 201	Advanced Radio/TV Production I	3	6	5
BCS 227	Technical Problems of Radio/TV	3	0	3
BCS 235	Radio/TV Station Management and Operation	3	0	3
BCS 245	Writing for Radio/TV	3	0	3
[3]E	Social Science Elective	3	0	3
	Total	15	6	17
	Fourth Semester			
BCS 202	Advanced Radio/TV Production II	3	6	5
BCS 247	Broadcast Advertising and Sales	3	0	3
BCS 255	Social Issues in American Broadcasting	3	0	3
BCS 290	Coordinated Internship (or BCS 298/299)	0	10	2
[2]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
[3]E	Social Science Elective	3	0	3
	Total	13-14	16	17-18
	Total Minimum Credits for Degree			68

[1]*ENG 111-112 with SPD 100 as elective is recommended for students who plan to transfer.*

[2]*Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

[3]*A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.*

Radiography

ASSOCIATE IN
APPLIED SCIENCE DEGREE
172

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 semester internship, the student is eligible to write the National Registry Examination leading to certification as a Registered Radiographer. Successful completion of the program and certifying exam will qualify a graduate to gain employment as a radiographer.

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.

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

Curriculum Admission Guidelines:

1. High school diploma or equivalent
2. Completion of two units of high school or college laboratory science from the following: biology, chemistry, physics
3. Completion of three units of high school or college mathematics - Algebra I, II and geometry
4. Current high school or college grade point average 2.0 or above

Admission Procedure:

Upon completing an application to the college, students seeking admission to the Radiography program must complete the Health Programs Application Form available in the Admissions or Counseling Office. Applicants must see a college counselor for information, evaluation, and advising regarding the program.

Applicants next should arrange for an interview with the program head and for a tour of the radiology department at a local hospital. Arrangements may be made through the Health Technology Division Office.

Each applicant's file will be considered by the Radiography Admissions Committee. Applicants will be notified in writing of the action taken by the committee.

Applicants are admitted to the Radiography program upon completion of admission procedures. Applicants are accepted beginning November 1 until the class is filled. Early application is encouraged.

Advanced Placement: Advanced placement is available for radiographers who wish to pursue an associate degree and for transfer students from other radiography programs. All inquiries for advanced placement must be directed to the radiography program head and will be considered on an individual basis.

Readmission: Students who have withdrawn for any reason from the Radiography Program are required to petition the program head no later than May 15 to be considered for readmission.

Student Responsibilities: Final admission is contingent upon a satisfactory medical 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).

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

Verification of current CPR certification will be required prior to the beginning of radiography classes and must be kept current.

Successful completion of the program equires the student to maintain a C or better in all radiography and clinical courses.

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

Radiography Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
HLT 143	Medical Terminology I	3	0	3
RAD 121	Radiographic Procedures I	3	3	4
BIO 145	Human Anatomy and Physiology for the Health Sciences	4	3	5
STD 100	Orientation	1	0	1
RAD 131	Elementary Clinical Procedures I	0	15-C	3
[1]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
	Total	12-13	21	17-18
	Second Semester			
RAD 205	Radiation Protection and Radiobiology	3	0	3
PHY 101	Introduction to Physics I	3	3	4
RAD 221	Radiographic Procedures	3	3	4
[2]E	Social Science Elective	3	0	3
RAD 132	Elementary Clinical Procedures II	0	15-C	3
	Total	12	21	17
	Summer Semester I			
RAD 298	Seminar and Project	1	0	1
RAD 225	Specialized Patient Care Procedure	2	0	2
RAD 190	Coordinated Practice	0	24-C	4
E	Elective	3	0	3
	Total	6	24	10
	Second-Year Curriculum			
	Fourth Semester			
RAD 111	Radiologic Science I	3	3	4
RAD 245	Radiologic Specialties	2	0	2
RAD 231	Advanced Clinical Procedures I	0	25-C	5
[2]E	Social Science Elective	3	0	3
[3]ENG 101	Practical Writing I (or ENG 111)	3	0	3
	Total	11	28	17
	Fifth Semester			
RAD 112	Radiologic Science II	3	3	4
RAD 240	Radiographic Pathology	3	0	3
RAD 232	Advanced Clinical Procedures II	0	25-C	5
[3]ENG 102	Practical Writing II (or ENG 112)	3	0	3
[1]HLT/PED	Health or Physical Education Elective	1-2	0	1-2
	Total	10-11	28	16-17
	Summer Semester II			
RAD 290	Coordinated Practice	0	22-C	7
RAD 215	Correlated Radiographic Theory	2	0	2
	Total	2	22	9
	Total Minimum Credits for Degree			86

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*

[2] *Social science requirement may be met by one full year of: HIS 101-102; HIS 121-122; PSY 201-202; PLS 211-212 or one semester each of PSY 120 and ECO 120.*

[3] *ENG 111-112 (College Composition, I-II) with SPD 100 or 105 as an elective may be substituted for ENG 101-102.*

Real Estate

(Career Studies)
055

Occupational Objectives: to prepare students to be licensed real estate brokers and salespersons upon successful completion of the Virginia Real Estate Commission examination.

Real Estate Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
REA 100	Principles of Real Estate	3	0	3
REA 105	Real Estate Mathematics	3	0	3
	Total	6	0	6
	Second Semester			
REA 215	Real Estate Brokerage	3	0	3
REA 216	Real Estate Appraisal	3	0	3
	Total	6	0	6
	Third Semester			
REA 217	Real Estate Finance	3	0	3
REA 245	Real Estate Law (or BUS 241)	3	0	3
[1]E	Real Estate Elective	3	0	3
	Total	9	0	9

Total Hours Required for Career Studies Certificate..... 21

[1] *Elective should be chosen from the following options: REA 226, REA 246, REA 247, or REA 256.*

Savings and Loan Administration

(Certificate)
229

Occupational Objectives: Management training, supervision, or real estate finance.

Savings and Loan Administration Curriculum

Course Number	Course Title First-Year Curriculum	Lecture Hours	Lab Hours	Course Credits
	First Semester			
FIN 130	Introduction to Savings Association Business	3	0	3
FIN 131	Savings and Loan Accounting I	3	0	3
FIN 135	Savings Association Operations	3	0	3
STD 100	Orientation	1	0	1
	Total	10	0	10
	Second Semester			
FIN 132	Savings and Loan Accounting II	3	0	3
FIN 136	Savings Accounts Administration	3	0	3
FIN 137	Real Estate Law - Savings and Loan	3	0	3
	Total	9	0	9
	Third Semester			
FIN 161	Real Estate Principles for Savings Institutions	3	0	3
FIN 165	Techniques for Customer Counseling	3	0	3
FIN 168	Mortgage Loan Servicing	3	0	3
	Total	9	0	9
	Fourth Semester			
ECO 120	Survey of Economics	3	0	3
ENG 105	Communication in Business and Industry	3	0	3
PLS 135	American National Politics	3	0	3
	Total	9	0	9
Total Minimum Credits for Certificate				37

Science

ASSOCIATE IN SCIENCE DEGREE
880

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, or Pre-Veterinary. Two specializations are offered under the Science Degree. Computer Science and Mathematics majors should follow the curriculum required in the Computer Science specialization. Students preparing for a baccalaureate degree in Nursing should follow the Pre-Nursing specialization.

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 that 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 (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	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
CSC 110	Introduction to Computing (or CSC 201)	3	0	3-4
ENG 111	College Composition I	3	0	3
MTH 171	Pre-Calculus Mathematics I (or MTH 166 or MTH 173)	3-5	0	3-5
[1]HLT	Health or Physical Education Elective	1-2	0	1-2
[1]E	Science Elective with Laboratory	3	3	4
STD 100	Orientation	1	0	1
	Total	14-17	3	15-19
	Second Semester			
[3]E	Humanities Elective	3	0	3
ENG 112	College Composition II	3	0	3
MTH 271	Applied Calculus I (or MTH 174)	3-5	0	3-5
[1]HLT	Health or Physical Education Elective	1-2	0	1-2
[2]E	Science Elective with Laboratory	3	3	4
[4]E	Transfer Elective	3	0	3
	Total	16-19	3	17-18
	Second-Year Curriculum			
	Third Semester			
HIS 121	United States History (or HIS 101)	3	0	3
[5]MTH 272	Applied Calculus II (or MTH 241)	3	0	3
[2]E	Science Elective with Laboratory	3	3	4
[6]E	Social Science Elective	3	0	3
[4]E	Transfer Elective	2-3	0	2-3
[4]E	Transfer Elective	2-3	3	2-3
	Total	16-18	3	17-18
	Fourth Semester			
[4]E	Transfer Elective	3-4	0-3	3-4
[2]E	Science Elective with Laboratory	2-3	2-3	3-4
[2]E	Science Elective with Laboratory	3	3	4
[6]E	Social Science Elective	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
	Total	14-16	5-9	16-18
	Total Minimum Credits for Degree			65

[1] *Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.*
[2] *Natural science courses must be selected from the biology, chemistry, geology, and physics courses listed on page 32.*
[3] *Humanities elective must be chosen from humanities electives listed on page 32.*
[4] *Electives must be chosen from transfer electives on page 32.*
[5] *Students who complete MTH 173-174 may substitute MTH 275 or an elective.*
[6] *A two-semester sequence of social science must be selected from the list of electives on page 32.*

continued

Science Curriculum

(Specialization: Computer Science)

880

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
CSC 201	Computer Science I	4	0	4
ENG 111	College Composition I	3	0	3
MTH 173	Calculus with Analytic Geometry I	5	0	5
[1]HLT	Health or Physical Education	1-2	0	1-2
[2]E	Social Science Elective	3	0	3
STD 100	Orientation	1	0	1
	Total	17-18	0	17-18
	Second Semester			
CSC 202	Computer Science II	4	0	4
ENG 112	College Composition II	3	0	3
MTH 174	Calculus with Analytic Geometry II	5	0	5
[1]HLT	Health or Physical Education	1-2	0	1-2
[2]E	Social Science Elective	3	0	3
	Total	16-17	0	16-17
	Second-Year Curriculum			
	Third Semester			
HIS 101	History of Western Civilization (or HIS 121)	3	0	3
MTH 241	Statistics I	3	0	3
MTH 275	Vector Calculus and Linear Algebra	4	0	4
PHY 241	University Physics I (or CHM 111)	3	3	4
[3]E	Elective	2-3	0	2-3
	Total	15-16	3	16-17
	Fourth Semester			
[4]E	Humanities Elective	3	0	3
PHY 242	University Physics II (or CHM 112)	3	3	4
[3]E	Elective	3	0	3
[3]E	Elective	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
	Total	15	3	16
Total Minimum Credits for Degree				65

[1]Two credits of health (HLT) or physical education (PED) are required of all students except veterans, who may substitute an elective.

[2]A two-semester sequence of social science must be chosen from the social science transfer electives listed on page 32.

[3]Electives must be chosen from transfer electives on page 32.

[4]A humanities elective must be chosen from the humanities transfer electives on page 32.

Science

Associate in Science Degree
(Specialization: Pre-Nursing)
880

Purpose: The curriculum is designed especially for students who plan to transfer into Radford University's baccalaureate degree program in nursing. Provided all courses are completed with a grade of C or above with a cumulative grade point average of 2.5 or higher, VWCC graduates will be accepted directly into Radford University's upper division nursing degree program. The upper division courses can now be completed at Roanoke Memorial Hospital, so it is possible to complete all of the baccalaureate degree nursing requirements without leaving the Roanoke Valley. Students who are preparing for transfer to an institution besides Radford University should check that institution's degree requirements to determine if substitutions in VWCC's course requirements need to be requested.

Curriculum Admissions Requirements: Four units of English; one unit of high school or college biology; one unit of social science; and three units of college preparatory mathematics (Algebra I, Geometry, and Algebra II). Developmental courses may be recommended for students with deficiencies in English and mathematics.

continued

Pre-Nursing Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
CHM 101	General Chemistry I (or CHM 111)	3	3	4
ENG 111	College Composition I	3	0	3
HIS 121	U.S. History (or HIS 101)	3	0	3
MTH 151	Liberal Arts Mathematics I	3	0	3
PSY 201	Introduction to Pychology	3	0	3
STD 100	Orientation	1	0	1
	Total	16	3	17
	Second Semester			
CHM 102	General Chemistry II or (CHM 112)	3	3	4
CIS 116	Computer and Information Systems (or CIS 199)	1	0	1
ENG 112	College Composition II	3	0	3
HLT 230	Principles of Nutrition and Human Development	3	0	3
MTH 152	Liberal Arts Mathematics II (or MTH 146)	3	0	3
PSY 215	Abnormal Psychology	3	0	3
	Total	16	3	17
	Second-Year Curriculum			
	First Semester			
BIO 141	Human Anatomy and Physiology I	3	2	4
ENG 241	American Literature (or ENG 243)	3	0	3
PHI 101	Introduction to Philosophy (or PHI 220)	3	0	3
PLS 211	U.S. Government (ECO 211)	3	0	3
[1]E	General Elective	3	0	3
	Total	15	2	16
	Second Semester			
BIO 142	Human Anatomy and Physiology II	3	2	4
NAS 180	Microbiology	2	2	3
PSY 235	Child Psychology (or PSY 231)	3	0	3
SOC 268	Social Problems (or SOC 201)	3	0	3
SPD 100	Principles of Public Speaking	3	0	3
	Total	14	4	16
Total Minimum Credits for Degree				66

Electives must be selected from the approved list of transfer electives on page 32. Students transfering to Radford University are advised to take a fine arts course (MUS 121 or ART 101).

Welding

(Certificate)
995

Purpose: There is a continuous need for properly trained welders to work in the manufacturing, construction, and maintenance/repair occupations. This program is designed to prepare the student for full-time employment in the welding field. In this curriculum, there are separate courses to introduce the student to the concepts, practices, and techniques of many types of welding. Also included are courses in welding metallurgy, blueprint reading, basic electricity, and industrial safety.

In addition to the aforementioned courses, the student and faculty advisor will select technical electives to complement the technical program of study. Two general education courses are also required in this curriculum.

Occupational Objectives: Arc, gas, mig, and tig welder; welding supervisor; welding inspector; or sales and service industry representative.

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	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
DRF 161	Blueprint Reading I	1	3	2
WEL 120	Fundamentals of Welding	1	3	2
STD 100	Orientation	1	0	1
	Total	3	6	5
	Second Semester			
ELE 126	Electricity and Shop Power Distribution	1	2	2
WEL 121	Arc Welding	1	3	2
	Total	2	5	4
	Second-Year Curriculum			
	Third Semester			
SAF 127	Industrial Safety	2	0	2
WEL 135	Inert Gas Welding	1	3	2
	Total	3	3	4
	Fourth Semester			
WEL 145	Welding Metallurgy	3	0	3
[1]E	Elective	3	0	3
	Total	6	0	6
	Additional required courses that may be taken any semester:			
ENG/SPD	English Elective	3	0	3
[1]E	Approved Technical Elective	3	0	3
[1]E	Approved Technical Elective	3	0	3
[2]E	Social Science Elective	3	0	3
	Total	12	0	12
Total Minimum Credits for Certificate				31

[1]*Technical elective - requires departmental approval.*
[2]*Social science elective*

Welding Practice

(Career Studies)
054

Purpose: The career studies program in Welding Practice is designed to provide technical skills and practice in the field of welding. This curriculum is composed of the technical core of the certificate program in Welding (without the technical electives and general education courses). The purpose of the Welding Practice program is to meet the short-term goals of individuals who wish to obtain entry-level skills or upgrade their knowledge and experience in the welding field. The courses of this program are transferable to the certificate program in Welding.

Occupational Objectives: Arc, gas, mig, and tig welding; welding supervisor; welding inspector; or sales and service industry.

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

Welding Practice Curriculum

Course Number	Course Title	Lecture Hours	Lab Hours	Course Credits
	First-Year Curriculum			
	First Semester			
DRF 161	Blueprint Reading I	1	3	2
WEL 120	Fundamentals of Welding	1	3	2
	Total	2	6	4
	Second Semester			
ELE 126	Electricity and Shop Power Distribution	1	2	2
WEL 121	Arc Welding I	1	3	2
	Total	2	5	4
	Second-Year Curriculum			
	Third Semester			
SAF 127	Industrial Safety	2	0	2
WEL 135	Inert Gas Welding	1	3	2
	Total	3	3	4
	Fourth Semester			
WEL 145	Welding Metallurgy	3	0	3
	Total	3	0	3
Total Minimum Credits for Certificate				15

Word Processing

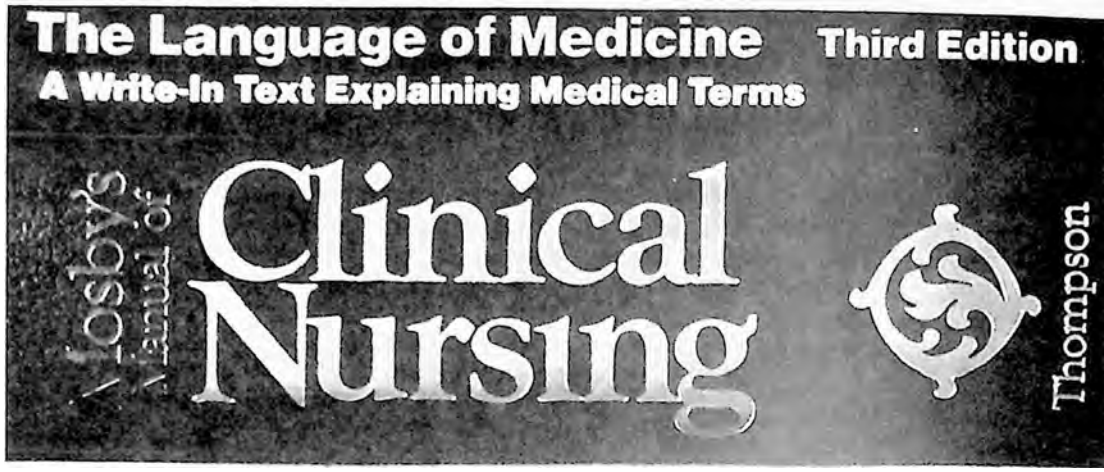
(Career Studies)
005

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 Semester			
OFT 241	Machine Transcription I	3	0	3
OFT 205	Business Communications	3	0	3
	Total	6	0	6
	Second Semester			
OFT 215	Executive Keyboarding	3	0	3
OFT 216	Processing Procedures	3	0	3
	Total	6	0	6
	Third Semester			
OFT 251	Office Systems and Procedures	3	0	3
OFT 236	Word Processing Operation and System Operation	4	0	4
OFT 252	Office Systems and Procedures	3	0	3
	Total	10	0	10
Total Minimum Credits for Certificate				22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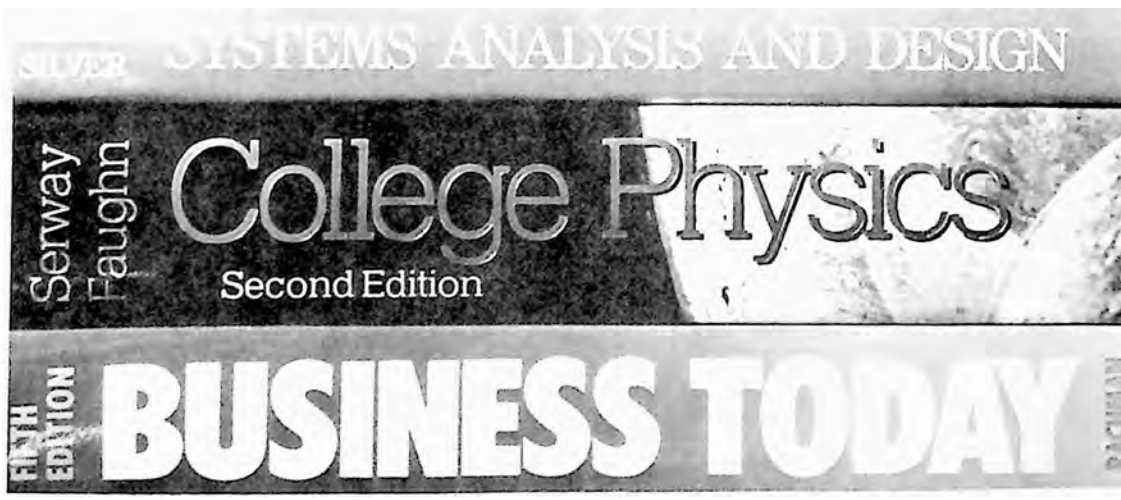
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PART VIII

Description 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; and (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 preregister for these courses in subsequent semesters 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 semester hour.

COURSE HOURS

The number of lecture hours in class each week (including lecture, seminar, and discussion hours) and/or the number of laboratory hours in 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 the 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 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.

General Usage Courses

The following "General Usage Courses" apply to multiple curricula and all 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.)
Includes 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/practice ratio maximum 1:5 hours. May be repeated for credit. Variable hours.

(INSERT APPROPRIATE PREFIX) 95, 195, 295 TOPICS IN (Insert appropriate discipline) (1-5 CR.)
Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours.

(INSERT APPROPRIATE PREFIX) 96, 196, 296 ON-SITE TRAINING IN (Insert appropriate discipline) (1-5 CR.)
Specializes in career orientation and training program without pay in selected businesses and industry, supervised and 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 Office. Is applicable to all occupational/technical curricula 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.)
Required completion of a project or research report related to the student's occupational objective and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

(INSERT APPROPRIATE PREFIX) 99, 199, 299 SUPERVISED STUDY IN (Insert appropriate discipline) (1-5 CR.)
Assigned problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hours.

Accounting (ACC)

ACC 01—Bookkeeping (3 CR.) Presents a study of the complete cycle of double-entry accounting. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

ACC 111-112—Accounting I-II (4 CR.) (4 CR.) Presents fundamental accounting concepts and principles governing the accounting cycle, journals, ledgers, working papers, and preparation of financial statements for sole proprietorships, partnerships, and corporations. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

ACC 151—Savings and Loan Association Accounting I (2 CR.) Prerequisite: FIN 130. Introduces concepts relating to accounting statements of condition and posting of entries to general and subsidiary ledgers, journal transactions, and preparation of trial balance and post-closing trial balances. Instructs in procedures used in recording cash transactions and in identifying the accounting purpose of source documents. Lecture 2 hours per week.

ACC 152—Savings and Loan Association Accounting II (2 CR.) Explores calculation of savings account earnings using the Last-In-First-Out (LIFO) method, recording transactions on a mortgage loan in a process ledger record, and determining amortization schedules. Includes identifying debit and credit entries to record lending activities, recording the payment of taxes and insurance, property valuation, depreciation, and distinguishing deferred and accrued income expenses. Lecture 2 hours per week.

ACC 211-212—Principles of Accounting I-II (3 CR.) (3 CR.) Corequisite: ACC 213-214. Presents accounting principles and their application to various businesses. Covers income determination, asset valuation, and financial reporting. Studies services, merchandising, and manufacturing operation, including internal controls, analysis of financial statements, cost accounting systems, and managerial concepts. Lecture 3 hours per week.

ACC 213-214—Principles of Accounting Laboratory I-II (1 CR.) (1 CR.) Provides problem-solving experiences to supplement instruction in ACC 211-212. Must be taken concurrently with ACC 211-212. Laboratory 2 hours per week.

ACC 215—Computerized Accounting (3-4 CR.) Prerequisite: ACC 212, ACC 214. Introduces the computer in solving accounting problems. Focuses on operation of computers. Presents the accounting cycle and financial statement preparation in a computerized system and other applications for financial and managerial accounting. Variable hours per week.

ACC 223-224—Intermediate Accounting I-II (4 CR.) (3 CR.) Prerequisite: ACC 212 and ACC 214 or equivalent. Analyzes principal elements of accounting systems and statements. Lecture 3 hours per week.

ACC 225—Managerial Accounting (3 CR.) Prerequisite: ACC 212, ACC 214. Presents the preparation, analysis and interpretation of accounting data for managerial decision making. Includes cost control, capital budgeting and pricing decisions. Lecture 3 hours per week.

ACC 231—Cost Accounting I (3 CR.) Prerequisite: ACC 212, ACC 214. Presents cost-accounting methods and reporting as applied to job order, process, and standard cost accounting systems. Includes cost control, profit analysis, and other topics. Lecture 3 hours per week.

ACC 241-242—Auditing I-II (3 CR.) (3 CR.) Prerequisite: ACC 224, ACC 241. Presents techniques of investigating, interpreting, and appraising accounting records and assertions. Studies internal control design

and evaluation, evidence-gathering techniques and other topics. Lecture 3 hours per week.

ACC 251—Accounting for Bankers I (3 CR.) Emphasizes modern practices of accounting procedures. Highlights the processing of accounting information, the accounting cycle, accounting systems and special journals, and accounting theory and partnerships. Covers latest accounting principles set by the Financial Accounting Standards Board. Lecture 3 hours per week.

ACC 252—Accounting for Bankers II (3 CR.) Prerequisite: ACC 251. Provides advanced concepts and techniques, building upon the foundations developed in Accounting for Bankers I. Treats policy analysis and management, emphasizing detailed accounting functions and procedures. Includes corporate accounting, analysis and interpretation of financial statements, and budgeting. Lecture 3 hours per week.

ACC 261—Principles of Federal Taxation I (3 CR.) Prerequisite: ACC 212, ACC 214. Presents the study of federal taxation as it relates to individuals and other tax entities. Includes tax planning, compliance and reporting. Lecture 3 hours per week.

Administration of Justice (ADJ)

ADJ 100—Survey of Criminal Justice (3 CR.) Presents an overview of the United States criminal justice system; introduces the major system components—law enforcement, judiciary, and corrections. Lecture 3 hours per week.

ADJ 105—The Juvenile Justice System (3 CR.) Presents the evolution, philosophy, structures and processes of the American juvenile delinquency system; surveys the rights of juveniles, dispositional alternatives, rehabilitation methods and current trends. Lecture 3 hours per week.

ADJ 106—Crime and Justice in America (3 CR.) Examines current issues and trends of crime and responses (attitudes, behaviors, structures—both private and public) to crime. Lecture 3 hours per week.

ADJ 107—Survey of Criminology (3 CR.) Surveys the volume and scope of crime; considers a variety of theories developed to explain the causation of crime and criminality. Lecture 3 hours per week.

ADJ 110—Introduction to Law Enforcement (3 CR.) Studies the philosophy and history of law enforcement, presenting an overview of the crime problem and policy response issues. Surveys the jurisdictions and organizations of local, state, and federal law enforcement agencies. Examines the qualification requirements and career opportunities in the law enforcement profession. Lecture 3 hours per week.

ADJ 111-112—Law Enforcement Organization & Administration I-II (3 CR.) (3 CR.) Prerequisite for ADJ 112 is divisional approval or ADJ 111. Teaches the principles of organization and administration of law enforcement agencies. Studies the management of line operations, staff and auxiliary services, investigative and juvenile units. Introduces the concept of data processing; examines policies, procedures, rules, and regulations pertaining to crime prevention. Surveys concepts of protection of life and property, detection of offenses, and apprehension of offenders. Lecture 3 hours per week.

ADJ 116—Special Enforcement Topics (3 CR.) Considers contemporary issues, problems, and controversies in modern law enforcement. Lecture 3 hours per week.

ADJ 118—Crisis Intervention and Critical Issues (3 CR.) Addresses basic problems involved in crisis intervention and current critical issues in law enforcement and the administration of justice; emphasizes practical approaches to discover and implement solutions. Lecture 3 hours per week.

ADJ 120—Introduction to Courts (3 CR.) Presents an overview of the American judiciary—the federal and 50 state judicial systems—with emphasis on criminal court structures, functions, and personnel; surveys the judicial system in Commonwealth of Virginia. Lecture 3 hours per week.

ADJ 140—Introduction to Corrections (3 CR.) Focuses on societal responses to the offender. Traces the evolution of practices based on philosophies of retribution, deterrence, and rehabilitation. Reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system. Lecture 3 hours per week.

ADJ 145—Corrections and the Community (3 CR.) Studies and evaluates the relationships and interactions between correctional organizations and free society. Focuses on the shared responsibility of the community and corrections agencies to develop effective programs for management and treatment of criminal offenders. Lecture 3 hours per week.

ADJ 150—Introduction to Security Administration (3 CR.) Introduces the student to the field of private security—its history, structures, functions, and personnel; surveys the principles and practices of security administration. Lecture 3 hours per week.

ADJ 154—Special Security Topics (3 CR.) Considers contemporary issues, problems, trends, and controversies in the modern private security field. Lecture 3 hours per week.

ADJ 171-172—Forensic Science I-II (4 CR.) (4 CR.) Introduces student to crime scene technology, procedures for sketching, diagramming, and using casting materials. Surveys the concepts of forensic chemistry, fingerprint classification identification and latent techniques, drug identification, hair and fiber evidence, death investigation techniques. thin-layer chromatographic methods, and arson materials examination. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ADJ 200—Criminal Behavior (3 CR.) Introduces and evaluates the concepts of normal and abnormal behavior; focuses on the psychological and sociological aspects of criminal and other deviant behavior patterns. Lecture 3 hours per week.

ADJ 201-202—Criminology I-II (3 CR.) (3 CR.) Studies current and historical data pertaining to criminal and other deviant behavior. Examines theories that explain crime and criminal behavior in human society. Lecture 3 hours per week.

ADJ 211-212—Criminal Law, Evidence and Procedures I-II (3 CR.) (3 CR.) Teaches the elements of proof for major and common crimes and the legal classification of offenses. Studies the kinds, degrees and admissibility of evidence and its presentation in criminal proceedings with emphasis on legal guidelines for methods and techniques of evidence acquisition. Surveys the procedural requirements from arrest to final disposition in the various American court systems with

focus on the Virginia jurisdiction. Lecture 3 hours per week.

ADJ 227—Constitutional Law for Justice Personnel (3 CR.) Surveys the basic guarantees of liberty described in the U. S. Constitution and the historical development of these restrictions on government power, primarily through U. S. Supreme Court decisions. Reviews rights of free speech, press, assembly, as well as criminal procedure guarantees (to counsel, jury trial, habeas corpus, etc.) as they apply to the activities of those in the criminal justice system. Lecture 3 hours per week.

ADJ 228—Narcotics and Dangerous Drugs (3 CR.) Surveys the historical and current usage of narcotics and dangerous drugs. Teaches the identification and classification of such drugs and emphasizes the symptoms and effects on their users. Examines investigative methods and procedures utilized in law enforcement efforts against illicit drug usage. Lecture 3 hours per week.

ADJ 229—Law Enforcement and the Community (3 CR.) Considers current efforts by law enforcement personnel to achieve an effective working relationship with the community. Surveys and analyzes various interactive approaches of law enforcement agencies and the citizenry they serve. Lecture 3 hours per week.

ADJ 236—Principles of Criminal Investigation (3 CR.) Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene search, collecting, handling and preserving of evidence. Lecture 3 hours per week.

ADJ 241-242—Correctional Law I-II (3 CR.) (3 CR.) Studies the legal rights and obligations of the convict-probationer, inmate, and parolee. Surveys methods of enforcing both rights and obligations and the responsibilities of corrections agencies and personnel under correctional law (constitutional, statutory, and regulatory provisions). Lecture 3 hours per week.

ADJ 246—Correctional Counseling (3 CR.) Presents concepts and principles of interviewing and counseling as applied in the correctional setting. Lecture 3 hours per week.

ADJ 248—Probation, Parole, and Treatment (3 CR.) Surveys the philosophy, history, organization, personnel and functioning of traditional and innovative probation and parole programs; considers major treatment models for clients. Lecture 3 hours per week.

Air Conditioning and Refrigeration (AIR)

AIR 121—Air Conditioning and Refrigeration I (3 CR.) Studies refrigeration theory, tools and equipment, soldering, brazing, refrigeration systems, system components, compressors, evaporators, metering devices. Provides laboratory application of refrigerators and freezers. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

AIR 122—Air Conditioning and Refrigeration II (3 CR.) Prerequisite: AIR 121. Presents operations of commercial refrigeration systems, ice machines, design, installation and service, air conditioning and heat pumps. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

AIR 123-124—Air Conditioning and Refrigeration III-IV (3 CR.) (3 CR.) Prerequisite: AIR 122. Psychometric properties of air, heat load and gain calculation, heated and chilled water systems, duct, design, air distribution and air comfort requirements. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

Architecture (ARC)

ARC 100—Introduction to Architecture (3 CR.) Outlines history and impact of architecture. emphasizes dynamics and social aspects of architecture and society; focuses on 19th and 20th century architectural forms. Lecture 3 hours per week.

ARC 111—Introduction to Architectural Drafting I (3 CR.) Introduces basic architectural drafting techniques including lettering; geometric construction; orthographic, isometric, and perspective drawings; shade and shadow construction in plans and elevations; and architectural symbols, indications and conventions. Lecture 1 hour. Laboratory 6 hours. Total 7 hours per week.

ARC 112—Introduction to Architectural Drafting II (3 CR.) Prerequisite: ARC 111 or equivalent. Studies various architectural and graphic techniques, including the use of pen and ink design and presentation drawings, and development of skills involved in the preparation of working drawings. Lecture 1 hour. Laboratory 6 hours. Total 7 hours per week.

ARC 130—Introduction to Materials and Methods of Construction (4 CR.) Introduces the physical properties and characteristics of building materials and methods of construction. Includes review of residential and light commercial wood-frame construction techniques and an introduction to steel and concrete structural systems. Lecture 4 hours per week.

ARC 140—Principles of Construction Safety (2 CR.) Covers construction industry operations and hazards control. Includes principles and practices of accident prevention, cost analysis, investigation techniques, reporting, first aid, protection equipment and general safety principles. Lecture 2 hours per week.

ARC 150—Introduction to Solar Industry (3 CR.) Surveys active and passive systems. Includes system design, heat loss calculation procedures, sizing of systems and determining solar contribution including computer applications. Lecture 3 hours per week.

ARC 233—Advanced Architectural Drafting III (3 CR.) Prerequisite: ARC 112, ARC 130. Introduces the procedures involved in architectural design and construction document processing. Requires preparation of set of working drawings for a residential design project. Lecture 1 hour. Laboratory 4 hours. Total 5 hours per week.

ARC 234—Advanced Architectural Drafting IV (3 CR.) Prerequisite: ARC 233. A continuation of Architectural Drafting III. Requires preparation of complete set of working drawings for a commercial design project. Lecture 1 hour. Laboratory 4 hours. Total 5 hours per week.

ARC 244—Building Mechanical Equipment (2 CR.) Studies heating, air conditioning, plumbing and electrical equipment, materials and symbols. Employs building code interpretation of working drawings and coordination of mechanical and electrical features with structural and architectural design. Lecture 2 hours per week.

ARC 255—Construction Estimating (2 CR.) Prerequisite: ARC 130 or departmental approval. Requires preparation of detailed material quantity surveys from plans and specifications for commercial construction. Discusses cost, bid, and contract procedures. Lecture 2 hours per week.

Arts (ART)

ART 101-102—History and Appreciation of Art I-II (3 CR.) (3 CR.) Presents the history and interpretation of architecture, sculpture, and painting. Begins with prehistoric art and follows the development of western civilization to the present. Lecture 3 hours per week.

ART 121-122—Drawing I-II (3-4 CR.) (3-4 CR.) Develops basic drawing skills and understanding of visual language through studio instruction/lecture. Introduces concepts such as proportion, space, perspective, tone, and composition as applied to still life, landscape, and the figure. Uses drawing media such as pencil, charcoal, ink wash, and color media. Includes field trips and gallery assignments as appropriate. Variable hours per week.

ART 131-132—Fundamentals of Design I-II (3-4 CR.) (3-4 CR.) Explores the concepts of two- and three-dimensional design and color. May include field trips as required. Variable hours per week.

ART 143-144—Calligraphy I-II (2-4 CR.) (2-4 CR.) Teaches use of the broad nib pen for various styles of lettering based on historical models. Variable hours per week.

ART 221-222—Drawing III-IV (3-4 CR.) (3-4 CR.) Introduces advanced concepts and techniques of drawing as applied to the figure, still life, and landscape. Gives additional instruction in composition, modeling, space, and perspective. Encourages individual approaches to drawing. Variable hours per week.

ART 231-232—Sculpture I-II (3-4 CR.) (3-4 CR.) Introduces sculptural concepts and methods of production in traditional and contemporary media. Includes clay, plaster, wood, stone, metal, plastics and terra cotta. May include field trips. Variable hours per week.

ART 241-242 Painting I-II (3-4 CR.) (3-4 CR.) Prerequisites: ART 122 or divisional approval. Introduces abstract and representational painting in acrylic and/or oil with emphasis on color composition and value. Variable hours per week.

ART 243-244 Watercolor I-II (3-4 CR.) (3-4 CR.) Prerequisite: ART 131 or divisional approval. Presents abstract and representational painting in watercolor, with emphasis on design, color, composition, technique, and value. Lecture 1-2 hours. Studio instruction 2-4 hours. Total 4-6 hours per week.

ART 251-252—Communication Design I-II (3-4 CR.) (3-4 CR. Studies the principles of visual communications as applied to advertising in newspapers, magazines, direct mail advertising, house organs, etc. Analyzes the influence of contemporary art on design. Variable hours per week.

ART 271-272—Printmaking I-II (3 CR.) (3 CR.) Introduces the student to the full range of printmaking techniques. Includes woodcut, silkscreen, etching, and lithography. Provides historical perspective on printmaking. Lecture 2 hours. Studio instruction 3 hours. Total 5 hours per week.

ART 281-282—Graphic Techniques I-II (3 CR.) (3 CR.) Focuses on the use of drawing instruments and materials. Introduces printing processes and the mechanics of reproduction. Lecture 2 hours. Studio instruction 3 hours. Total 5 hours per week.

ART 286 Communication Arts Workshop (3 CR.) Requires special project and/or research focusing on career opportunities. Teaches resume and portfolio preparation and interview techniques. May include internship with a professional design firm. Requires instructor's approval. Lecture 1 hour. Studio instruction 4 hours. Total 5 hours per week.

Automotive (AUT)

AUT 111-112—Automotive Engines I-II (4 CR.) (4 CR.) Presents 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.

AUT 126—Auto Fuel and Ignition Systems (5 CR.) Studies automobile ignition and fuel systems, their functions in operation of engine. Includes carburetors, fuel pumps, ignition systems, troubleshooting, engine test and adjustment, tune-up. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

AUT 131-132—Automotive Technology I-II (5 CR.) (5 CR.) Corequisite: AUT 171-172 or departmental approval. Studies operation, construction, repair, and servicing of the major components of the automobile. Includes laboratory and shop safety, use of tools and equipment, overhaul techniques, and maintenance procedures. Lecture 3 hours. Laboratory 6 hours. Total 9 hours per week.

AUT 135—Consumer Auto Repair (2 CR.) Introduces basic study and practice of home maintenance and repair of automotive vehicles. Includes basic theory of the automobile, hand tool selection and use, and repair tasks able to be accomplished in the home garage without power equipment. Designed for non-automotive degree and certificate students only. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

AUT 136—Automotive Vehicle Inspection (2 CR.) Presents information on methods for performing automotive vehicle safety inspection. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

AUT 141-142—Auto Power Trains I-II (4 CR.) (4 CR.) Presents operation, design, construction and repair of power train components, standard and automatic transmission. Includes clutches, propeller shaft, universal joints, rear axle assemblies, fluid couplings, torque converters as well as 2, 3, and 4 speed standard, overdrive and automatic transmissions. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week.

AUT 156—Small Gasoline Engines (2 CR.) Studies small gasoline engine operating principles, construction, design, variety, and their many purposes. Gives instruction on two-cycle and four-cycle small gas engines, their construction, design, fuel system, ignition system, and lubricating systems. Demonstrates disassembly, reconditioning, overhaul, and reassembly in the lab. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

AUT 171-172—Automotive Systems I-II (4 CR.) (4 CR.) Corequisite: AUT 131 or departmental approval. Presents fundamental systems of the automobile

including lubrication, cooling, fuel and basic ignition systems. Stresses theory of operation, inspection, adjustments, and repair procedures Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

AUT 211-212—Automotive Systems III-IV (4 CR.) (4 CR.) Presents advanced theory and detailed study of automobile systems. Provides laboratory periods for actual field practice in troubleshooting. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 217—Computerized Fuel Systems (3 CR.) Introduces devices that sense the engine condition and control fuel mixture to produce economical fuel consumption. Teaches theory of operation, testing, adjustment and repair or replacement of these devices. Variable lecture/laboratory hours per week.

AUT 231-232—Automotive Technology III-IV (5 CR.) (5 CR.) Presents advanced study of more complicated major components of the automobile. Uses modern electronic and mechanical diagnostic procedures in the testing and evaluation of repair problems. Conducts estimation of repair costs and performance checks. Lecture 3 hours. Laboratory 6 hours. Total 9 hours per week.

AUT 235—Automotive Heating and Air Conditioning (3 CR.) Studies separate and combined automotive heaters and air conditioners, including direct and vacuum-operated controls, basic principles of refrigeration, adjustment. general servicing, and charging of air conditioning systems. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

AUT 238—Automotive Accessory Service (2 CR.) Introduces operating principles, adjustment, and servicing of selected automotive accessories. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

AUT 241-242—Automotive Electricity I-II (4 CR.) (4 CR.) Introduces electricity and magnetism, symbols and circuitry as applied to the alternators, regulators, starters, lighting systems, instruments and gauges. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 245—Automotive Electronics (4 CR.) Prerequisite: AUT 172 or departmental approval. Introduces field of electronics as it applies to the modern automobile. Emphasizes basic circuit operation, diagnosis and repair of digital indicator and warning systems. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

AUT 265—Automotive Braking Systems (3 CR.) Presents operation, design, construction, repair, and servicing of braking system. Explains uses of tools and test equipment, evaluation of test results, estimation of repair cost for power, standard and disc brakes. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

AUT 268—Automotive Alignment (2 CR.) Studies use of alignment equipment in diagnosing, adjusting, and repairing suspension problems. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

AUT 276—Shop Management (3 CR.) Studies shop layout, personnel and management, cost analysis, record keeping, and quality control. Discusses shop manager, service salesman, and service writer's roles in customer relations. Lecture 3 hours per week.

Aviation (ARO)

ARO 111—Flight I (1 CR.) Commences flight training. Teaches aeronautical skills necessary to meet the requirements for private pilot certificate. Consists of thirty-two hours of flight training. Requires a special fee. Laboratory 2 hours per week.

ARO 112—Flight II (1 CR.) Continues flight training for attaining private pilot certificate. Commences flight training toward the instrument rating. Consists of thirty-two hours of flight training. Laboratory 2 hours per week.

ARO 113—Flight III (1 CR.) Continues flight training toward the time instrument rating. Consists of thirty-two hours of flight training. Laboratory 2 hours per week.

ARO 121—Private Pilot Ground School (3 CR.) Presents the fundamental principles of flight, including theory of flight, aircraft standards and specifications, basic aircraft construction, weight and balance, navigation, meteorology, principles of radio communication, and application of aerophysics. Prepares students for the FAA examination for private pilot rating. Lecture 3 hours per week.

ARO 122—Instrument Pilot Ground School (3 CR.) Covers principles applicable to instrument aviation requirements. Includes study of aerodynamics pertaining to instrument flight, flight instruments, and airways. Prepares students for the FAA examination for instrument pilot rating. Lecture 3 hours per week.

Biology (BIO)

BIO 101-102—General Biology I-II (4 CR.) (4 CR.) Explores fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Introduces the diversity of living organisms, their structure, function, and evolution. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 141-142—Human Anatomy and Physiology I-II (4 CR.) (4 CR.) Prerequisite: high school biology or BIO 101. Integrates anatomy and physiology of cells, tissues, organs, and systems of the body. Lecture 3 hours per week. Recitation and laboratory 2 hours per week. Total 5 hours per week.

BIO 145—Human Anatomy and Physiology for the Health Sciences (5 CR.) Prerequisite: high school biology or BIO 101. Introduces human anatomy and physiology primarily to those planning to pursue an AAS degree in nursing. Covers basic chemical concepts, cellular physiology, as well as the anatomy and physiology of human organ systems. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

BIO 150—Introductory Microbiology (4 CR.) Studies the general characteristics of microorganisms. Emphasizes their relationships to individual and community health. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 205—General Microbiology (4 CR.) Prerequisites one year of college biology and one year of college chemistry or divisional approval. Examines morphology, genetics, physiology, ecology, and control of microorganisms. Emphasizes application of microbiological techniques to selected fields. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 215—Plant Life of Virginia (3 CR.) Focuses on identification and ecological relationships of the native plants of Virginia. Emphasizes shrubs, vines, weeds, wildflowers, ferns, and mushrooms. Lecture 2 hours. Recitation and laboratory 3 hours. Total 5 hours per week.

BIO 226—Vertebrate Zoology (4 CR.) Prerequisite: BIO 101. Focuses on structure, embryology, function, ecology, classification, and evolution of vertebrate animals. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 256—General Genetics (4 CR.) Prerequisite: BIO 101. Explores the principles of genetics ranging from classical Mendelian inheritance to the most recent advances in the biochemical nature and function of the gene. Includes experimental design and statistical analysis. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 265—Biology of Non-Vascular Plants (4 CR.) Prerequisite: BIO 101. Covers lower plants and fungi. Studies major taxonomic groups, their morphology, life cycles, ecology, physiology, and economic importance. Lecture 3 hours. Recitation and laboratory 3 hours. Total 6 hours per week.

BIO 277—Regional Flora (3 CR.) Stresses family characteristics of vascular plants including identification and classification of local flora. Lecture 2 hours. Recitation and laboratory 3 hours. Total 5 hours per week.

Broadcasting (BCS)

BCS 100—Broadcasting In America (3 CR.) Studies broadcasting from experimental radio transmissions to satellite television, including topical examination of economics of American broadcasting and social control of American broadcasting. Lecture 3 hours per week.

BCS 101-102—Introduction to Radio/TV Production I-II (4 CR.) (4 CR.) Introduces the field of radio and television communications including historical overview of the field. Teaches the organization, principles, theories, and aesthetics of radio and television production and operation from broadcast and non-broadcast points of view. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

BCS 111-112—Speech for Radio/TV I-II (3 CR.) (3 CR.) Studies broadcast announcing, including phonetics, pronunciation, enunciation, technical problems, techniques and modes of articulatory expression in varied broadcast situations. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

BCS 125—Television Design (3 CR.) Corequisite: BCS 101. Studies design and use of television camera graphics, electronically generated graphic images, props and scenery, sets, lighting, and other special effects. Lecture 3 hours per week.

BCS 201-202—Advanced Radio/TV Production I-II (5 CR.) (5 CR.) Prerequisite: BCS 102. Teaches advanced radio and television program production and direction, including production environment and organization; producer-director responsibilities and techniques; and practical exercises in student production and direction. Lecture 3 hours. Laboratory 6 hours. Total 9 hours per week.

BCS 227—Technical Problems of Radio/TV (3 CR.) Prerequisite:BCS 102. Studies operating principles and characteristics of equipment comprising audio, video, editing, and transmission systems of radio/TV facilities, including special purpose processing equipment, production use of test equipment, signal routing, and troubleshooting techniques. Lecture 3 hours per week.

BCS 235—Radio/TV Station Management and Operation (3 CR.) Prerequisite: BCS 102. Studies broadcast management responsibility and authority, beginning with overview of management theory. Includes inter- and intra-departmental relationships, social controls influencing managerial decision making. Lecture 3 hours per week.

BCS 245—Writing for Radio/TV (3 CR.) Prerequisite: BCS 102, ENG 101-102 or equivalent. Studies the planning and writing of news, documentaries, public affairs programming, and industrial/educational scripts for radio and television. Teaches writing theories and techniques, formats, audience analysis, functional and emotional appeals, and production considerations. Lecture 3 hours per week.

BCS 247—Broadcast Advertising and Sales (3 CR.) Prerequisite BCS 102. Analyzes advertising and sales functions in broadcast stations with emphasis on structure of sales department, rating systems, and rate cards. Teaches theory and gives practice in radio and television copywriting. Examines advertising agencies, media buyers, and research organizations in context of their relationship to broadcasting industry. Lecture 3 hours per week.

BCS 255—Social Issues In American Broadcasting (3 CR.) Prerequisite BCS 102. Provides critical and analytical study of dominant issues in contemporary broadcasting through readings, screenings, and discussions. Evaluates production values and ethics from industry and audience perspectives. Includes studies of violence and sex in media, free flow of information, influence of advertising, and the media's portrayal of minorities. Lecture 3 hours per week.

Building (BLD)

BLD 111—Blueprint Reading and the Building Code (3 CR.) Introduces reading and interpreting various kinds of blueprints and working drawings with reference to local, state, and national building codes. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

BLD 164—Construction Leadership and Motivation (2 CR.) Presents the functions, responsibilities, and leadership of a construction supervisor, including office and field management, construction labor laws, labor relations, safety, and construction laws. Lecture 2 hours per week.

BLD 165—Construction Field Operations (2 CR.) Introduces areas of construction field management that relate directly to on-the-job requirements of construction operations viewed from the construction superintendent's standpoint. Includes theories of project management and field supervision; utilization of equipment, labor, and material; construction site development; requirements of field scheduling; management input requirements; job recording and documentation; supervision responsibility. May include field trips to project sites. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

BLD 166—Construction Law (2 CR.) Prerequisite: divisional approval. Presents general principles of construction law pertaining to contract documents, general conditions, changes in specifications, pricing of claims, arbitration, design responsibility, mechanic's liens, delays, and construction management. Lecture 2 hours per week.

BLD 167—Problem Solving and Decision Making (2 CR.) Applies problem-solving and decision-making techniques to the problems encountered by the construction foreman or superintendent. Lecture 2 hours per week.

BLD 168—Contract Documents (2 CR.) Interprets and integrates specifications and drawings into the construction supervision process. Identifies interrelationships of authority and legal and social implications of supervisor's role as an agent of the contractor. Lecture 2 hours per week.

BLD 169—Cost Awareness and Production Control (2 CR.) Introduces the construction cycle and the preparation estimate, cost reports, and work schedules for commercial construction. Emphasizes techniques for controlling construction costs and evaluating past projects. Lecture 2 hours per week.

BLD 170—Introduction to Project Management (2 CR.) Teaches fundamentals of basic techniques such as applied planning, organizing and staffing a construction project. Emphasizes techniques for purchasing and receiving materials and monitoring subcontractor work. Lecture 2 hours per week.

BLD 175—Construction Productivity Improvement (2 CR.) Introduces techniques used to improve productivity including planning, communications, motivation, time management, and an analysis of work methods. Lecture 2 hours per week.

BLD 176—Government Regulation of Business (2 CR.) Surveys recent federal, state, and local government rules and regulations and their effects on private business and industry. Covers (but is not limited to) EEO, Affirmative Action, OSHA, EPA, DOT, and hazardous materials regulations. Emphasizes effect these regulations have on business activity and profits and their importance to all levels of organizational management. Lecture 2 hours per week.

BLD 177—Planning Scheduling Techniques (2 CR.) Introduces principles and use of modern planning, scheduling, and control techniques. Includes graph preparation, updating and analysis of arrow-diagrams, project progress, and manpower reports. Lecture 2 hours per week.

BLD 230—Construction Contracting (2 CR.) Presents functions, responsibilities, and management of the general contractor. Includes office and field management, drawings and specifications, contract bonds, insurance, construction labor law, labor relations, safety, and construction law. Includes application of project cost accounting and project scheduling. Lecture 2 hours per week.

Business Management and Administration (BUS)

BUS 100—Introduction to Business (3 CR.) Presents a broad introduction to the functioning of business enterprise within the U.S. economic framework. Introduces economic systems, essential elements of business organization, finance, marketing, production, and risk and human resource management. Lecture 3 hours per week.

BUS 105—Business Machines (2 CR.) Develops proficiency in the use of office machines such as calculators and adding machines. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

BUS 111—Principles of Supervision I (3 CR.) Teaches the fundamentals of supervision, including the primary responsibilities of the supervisor. Introduces factors relating to the work of supervisor and subordinates. Covers aspects of leadership, job management, work improvement, training and orientation, performance evaluation, and effective employee/ supervisor relationships. Lecture 3 hours per week.

BUS 112—Principles of Supervision II (3 CR.) Prerequisite: BUS 111. Develops skills in carrying out the responsibilities of a supervisor including interviewing, orienting new workers, training workers, evaluating and disciplining, and problem-solving techniques. Lecture 3 hours per week.

BUS 115—Organizational Behavior (3 CR.) Presents a behaviorally oriented course combining the functions of management with the psychology of leading and managing people. Focuses on the effective use of human resources through understanding human motivation and behavior patterns, conflict management and resolution, group functioning and process, the psychology of decision making, and the importance of recognizing and managing change. Lecture 3 hours per week.

BUS 121—Business Mathematics I (3 CR.) Applies mathematics to business processes and problems such as checkbook records and bank reconciliation, simple interest notes, present value, bank discount notes, wage and payroll computations, depreciation, sales and property taxes, commercial discounts, markup and markdown, and inventory turnovers and valuation. Lecture 3 hours per week.

BUS 122—Business Mathematics II (3 CR.) Applies mathematical operations to business problems, such as insurance, distribution of profit and loss in partnerships, distribution of corporate dividend, overhead, financial statements and ratios, sinking funds, compound interest, amortization, annuities, present value, basic statistics, break-even analysis, and multiple payment plans. Lecture 3 hours per week.

BUS 125—Applied Business Mathematics (3 CR.) Prerequisite: MTH 120. Applies mathematics to business process and problems such as checkbook records and bank reconciliation, simple interest, present value, bank discount notes, depreciation, commercial discounts, markup and markdown, distribution of profit and loss in partnerships, distribution of corporate dividend, sinking funds, compound interest, amortization, annuities, and multiple payment plans. Lecture 3 hours per week.

BUS 150—Principles of Management (3 CR.) Teaches management and the management functions of planning, organizing, directing, and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. Lecture 3 hours per week.

BUS 155—Applied Management Principles (3 CR.) Prerequisite: BUS 150. Focuses on management practices and issues. May use case studies and/or

management decision models to analyze and develop solutions to management problems. Lecture 3 hours per week.

BUS 157—Women In Management (3 CR.) Introduces responsibilities, functions, and decisions required in or preparing for a management position, and impact of these decisions on women. Presents a comprehensive view of how women may establish and maintain their effectiveness as managers at all levels within an organization. Lecture 3 hours per week.

BUS 165—Small Business Management (3 CR.) Identifies management concerns unique to small businesses. Introduces the requirements necessary to initiate a small business, and identifies the elements comprising a business plan. Presents information establishing financial and administrative controls, developing a marketing strategy, managing business operations, and the legal and government relationships specific to small businesses. Lecture 3 hours per week.

BUS 205—Human Resource Management (3 CR.) Introduces employment, selection, and placement of personnel, usage levels and methods, job descriptions, training methods and programs, and employee evaluation systems, Includes procedures for management of human resources and uses cases studies and problems to demonstrate implementation of these techniques. Lecture 3 hours per week.

BUS 206—Public Relations In Management (3 CR.) Presents public relations as a management responsibility and introduces the theory of public relations. Focuses on public relations techniques and their application to gaining and maintaining understanding and support for an organization from the employee, community, customer, supplier, and stockholder. Uses lectures, demonstrations, and case problems. Lecture 3 hours per week.

BUS 221—Business Statistics I (3 CR.) Prerequisite: MTH 171 or divisional approval. Focuses on statistical methodology in the collection, organization, presentation, and analysis of data; concentrates on measures of central tendency, dispersion, probability concepts and distribution, sampling, statistical estimation, normal and T distribution and hypotheses for means and proportions. Lecture 3 hours per week.

BUS 222—Business Statistics II (3 CR.) Prerequisite BUS 221 or divisional approval. Continues study of inferential statistics and application of statistical techniques and methodology in business. Includes analysis of variance, regression and correlation measurement of business and economic activity through the use of index numbers, trend, cyclical, and seasonal effects and the Chi-Square distribution and other non-parametric techniques. Lecture 3 hours per week.

BUS 225—Applied Business Statistics (3 CR.) Prerequisite MTH 120. Introduces statistics as a tool in decision making. Emphasizes ability to collect, present, and analyze data. Employs measures of central tendency and dispersion, statistical inference, index number, and time series analysis. Lecture 3 hours per week.

BUS 226—Microcomputer Application In Business (4 CR.) Prerequisite keyboarding competence. Provides a practical application of software packages. Offers a working knowledge of spreadsheets, word processing, data base management, outlining and graphics. Includes the use of programs in accounting techniques, word processing, and management science application. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

BUS 235—Business Letter Writing (3 CR.) Applies composition principles to business correspondence, employment documents, and reports (including presentation of data in various chart formats). Focuses on preparing effective communications with customers, suppliers, employees, the public, and other business contacts. Lecture 3 hours per week.

BUS 236—Communication In Management (3 CR.) Introduces the functions of communication in management with emphasis on gathering, organizing, and transmitting facts and ideas. Teaches the basic techniques of effective oral and written communication. Lecture 3 hours per week.

BUS 241—Business Law I (3 CR.) Presents a broad introduction to legal environment of U.S. business. Develops a basic understanding of contract law and agency and government regulation. Lecture 3 hours per week.

BUS 242—Business Law II (3 CR.) Prerequisite BUS 241. Develops a basic understanding of the uniform commercial code relating to business organization bankruptcy, and personal and real property. Lecture 3 hours per week.

BUS 265—Ethical Issues in Management (3 CR.) Examines the legal, ethical, and social responsibilities of management. May use cases to develop the ability to think and act responsibly. Lecture 3 hours per week.

BUS 280—Introduction to International Business (3 CR.) Studies the problems, challenges, and opportunities that arise when business operations or organizations transcend national boundaries. Examines the functions of international business in the economy, international and transnational marketing, production, and financial operations. Lecture 3 hours per week.

Chemistry (CHM)

CHM 05—Developmental Chemistry for Health Sciences (4 CR.) Prerequisite: Algebra I. Introduces basic principles of inorganic, organic, and biological chemistry. Emphasizes applications to the health sciences. Lecture 3 hours per week. Laboratory 3 hours per week. Total 6 hours per week.

CHM 101-102—General Chemistry I-II (4 CR.) (4 CR.) Prerequisite: Algebra II. Emphasizes experimental and theoretical aspects of inorganic, organic, and biological chemistry. Discusses general chemistry concepts as they apply to issues within our society and environment. Designed for the non-science major. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

CHM 111-112—College Chemistry I-II (4 CR.) (4 CR.) Prerequisite: Algebra II. High school chemistry recommended but not required. Explores the fundamental laws, theories, and mathematical concepts of chemistry. Designed primarily for science and engineering majors. Requires a strong background in mathematics. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

CHM 241-242—Organic Chemistry I-II (3 CR.) (3 CR.) Prerequisite: CHM 112 or equivalent. Introduces fundamental chemistry of carbon compounds, including structures, physical properties, syntheses. and typical reactions. Emphasizes reaction mechanisms. Lecture 3 hours per week.

CHM 243-244—Special Organic Chemistry Laboratory I-II (1 CR.) (1 CR.) Must be taken concurrently with, or after, CHM 241 and CHM 242. Laboratory 3 hours per week.

Civil Engineering Technology (CIV)

CIV 130—Construction Planning (3 CR.) Introduces the principles and economics of construction planning. Lecture 3 hours per week.

CIV 145—Applied Soil Erosion and Sediment Control (2 CR.) Focuses on the implementation of erosion and sediment control plans and inspection of construction sites based on local programs in accordance with Virginia law and the Virginia Erosion and Sediment Control Handbook. Lecture 2 hours per week.

CIV 171—Surveying I (3 CR.) Prerequisite: MTH 103 or equivalent. Introduces surveying equipment, procedures and computations including adjustment of instruments, distance measurement, leveling, angle measurement, traversing, traverse adjustments, area computations and introduction to topography. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

CIV 172—Surveying II (3 CR.) Prerequisite: CIV 171 or departmental approval. Introduces surveys for transportation systems including the preparation and analysis of topographic maps, horizontal and vertical curves, earthwork, and other topics related to transportation construction. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

CIV 201—Suburban Development I (3 CR.) Presents the preparation of preliminary plans, subdivision computations and preparation of record plats for residential areas. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

CIV 218—Structural Design (4 CR.) Prerequisite MEC 132. Introduces the design, investigation, and detailing of structural steel and reinforced concrete members in building and highway construction. Lecture 4 hours per week.

CIV 230—Civil Construction Materials (4 CR.) Introduces the basic properties of Portland cement concrete, soils and bituminous materials. Includes design and composition, placement, sampling, and testing of concrete, soils, and asphalt cements used in civil engineering construction. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

Computer Information Systems (CIS)

CIS 100—Introduction to Information Systems (3-4 CR.) Introduces students to general concepts of processing data on computer information systems. Presents terminology and effects of computers on daily life. Discusses available hardware and software as well as their applications. Exposes students to the system development process. May include "hands on" experience. (Not intended for computer science or computer information systems majors.) Variable hours per week.

CIS 110—Fundamentals of Computer Information Systems (3-4 CR.) Provides a technical approach to concepts and terminology of computer information systems. Includes the study of computer information systems: hardware, software, methods of data processing, functions, capabilities, and limitations of computer systems. Exposes students to techniques used in system development. May include "hands on" experience. Lecture 3 hours per week. Laboratory 0-2 hours per week. Total 3-5 hours per week.

CIS 116—Computers and Information Systems (1 CR.) Introduces terminology, concepts and methods of using computers in information systems. This is a computer literacy course, not intended for Computer Information Systems majors. Lecture 1 hour per week.

CIS 121—Computer Programming: BASIC I (4 CR.) Prerequisite: CIS 110 or departmental approval. Teaches writing BASIC programs from stated problems or specifications, applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 125—Computer Program Design (3-4 CR.) Teaches design of programming solutions to common processing problems in information systems. Surveys methods and styles of structured modular design, using recognized design tools. May include "hands-on" experience. Variable hours per week.

CIS 131—Computer Programming: COBOL I (4 CR.) Prerequisite: CIS 110 or departmental approval. Teaches writing COBOL programs from stated problems or specifications and applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 141—Computer Programming: PASCAL I (4 CR.) Prerequisite: CIS 110. Teaches writing PASCAL programs from stated problems or specifications and applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 150—Introduction to Microcomputer Software (3-4 CR.) Provides a working introduction to microcomputer software, fundamentals, and applications. Includes operating systems, word processing spreadsheet, and database software. Variable hours per week.

CIS 151—Computer Programming: FORTRAN I (4 CR.) Prerequisite: CIS 110 or departmental approval. Teaches writing FORTRAN programs from stated problems or specifications, applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 157—Microcomputer Spreadsheet Software (3-4 CR.) Prerequisite: CIS 150 or departmental approval. Provides hands-on introduction to microcomputer spreadsheet software. Includes creating a spreadsheet for data analysis, integrating information from data base, displaying results in graphic format, techniques for "what if" analyses, and introduction to macros. Offers a working knowledge of a commercial spreadsheet package. Variable hours per week.

CIS 158—Microcomputer Data Base Management Software (3-4 CR.) Prerequisite: CIS 150 or departmental approval. Provides hands-on introduction to microcomputer software for database management. Teaches planning, defining, and using a data base;

performing queries; producing reports; working with multiple files; and concepts of data base programming. Offers a working knowledge of a commercial data base package. Variable hours per week.

CIS 159—Business Graphics Software (3-4 CR.) Prerequisite: CIS 150 or departmental approval. Provides a working knowledge of several microcomputer business graphics packages. Includes techniques for evaluation and selection of graphics software. Variable hours per week.

CIS 161—Computer Programming: Assembler I (4 CR.) Prerequisite: CIS 205 and CIS 231. Teaches writing ASSEMBLER programs from stated problems or specifications, applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 165—Microcomputer Communication Software (3-4 CR.) Prerequisite: CIS 150 or departmental approval. Provides a working knowledge of commercially available microcomputer communications software. Includes techniques for evaluating and selecting communications software packages. Surveys fundamental telecommunications terminology for microcomputer communications packages. Variable hours per week.

CIS 166—Microcomputer Integrated Software (3-4 CR.) Prerequisite: CIS 150 or departmental approval. Provides hands-on introduction to integrated software packages for microcomputers. Teaches integration of spreadsheet data base management with word processing and telecommunication software. Includes import/export facilities. Offers working knowledge of an integrated software package. Variable hours per week.

CIS 171—Computer Programming: RPG (4 CR.) Prerequisite: CIS 110 or departmental apporval. Teaches writing RPG programs from stated problems or specifications, applying methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 175—Computer Programming: ADA I (4 CR.) Teaches writing ADA programs from stated problems or specifications, applying structured programming methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 176—Computer Programming: C I (4 CR.) Prerequisite: CIS 121. Teaches writing C programs from stated problem or specifications and applying structured program methods to produce satisfactory results. Provides specific skills for modifying and maintaining existing programs. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 205—Job Control Language (3-4 CR.) Prerequisite: CIS 121 and CIS 131. Focuses on task flow, job flow, and operating systems communication through use of Job Control Language. Teaches the JCL statements, catalog procedures, symbolics, and load module/file interfaces. Variable hours per week.

CIS 221—Computer Programming: BASIC II (4 CR.) Prerequisite CIS 121. Emphasizes advanced structure programming techniques and procedures for more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 225—Computer Information System Development (3 CR.) Prerequisite CIS 121 and CIS 131. Presents a structured approach to defining needs, creating specifications, and implementing new information systems. Emphasizes business-oriented, computer-based systems. Defines common processes and procedures. Includes data modelling, report generation, life cycle methodology, and traditional and structured tools for development. Lecture 3 hours per week.

CIS 227—Computer Systems Selection and Acquisition (3 CR.) Prerequisite CIS 225 or departmental approval. Provides a study of selection and acquisition of a computer system's hardware and software components. Compares features and capabilities of available hardware and software. Studies selection criteria and methods of acquisition and procurement. Lecture 3 hours per week.

CIS 228—Microcomputers: Operating Systems, Architecture, and Hardware (3 CR.) Prerequisite: CIS 150.eFocuses on microcomputer architecture, operating systems, internal functions, and peripheral equipment interfaces. Teaches memory segmentation, instruction and data formats, and interaction with user software. Lecture 3 hours per week.

CIS 229—Mainframes: Operating Systems Architecture and Hardware (3 CR.) Prerequisite: CIS 110. Focuses on mainframe computer operating systems and their interaction with user programs. May include interrupt handling, virtual storage, dynamic addresse translation, dump reading, task management, performance considerations, and basic operating system control blocks. Lecture 3 hours per week.

CIS 230—Introduction to Telecommunications (3 CR.) Prerequisite: CIS 150. Surveys data transmission systems, communication lines, data sets, network, modes of transmission. Emphasizes multiplexing in a network structure. Focuses on both intelligent and non-intelligent terminals. Lecture 3 hours per week.

CIS 231—Computer Programming: COBOL II (4 CR.) Prerequisite CIS 131. Emphasizes advanced structured programming techniques and procedures for more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 235—Telecommunication Software (3 CR.) Prerequisite: CIS 230. Surveys components, functions, and relationships of telecommunication software. Introduces network control programs, network architecture, line protocols, and communication access methods. Lecture 3 hours per week.

CIS 241—Computer Programming: PASCAL II (4 CR.) Prerequisite CIS 141. Emphasizes advanced structured programming techniques and procedures for more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 245—Data Base Management (3 CR.) Prerequisite a course in a high level language. Focuses on the basic models and capabilities of standard data base management systems (DBMS) packages. Teaches data base principles, file-level models, data-level models, operation implementation, maintenance, and security of data base systems. Covers methods of DBMS selection and evaluation. Variable hours per week.

CIS 251—Computer Programming: FORTRAN II (4 CR.) Prerequisite CIS 151. Emphasizes advanced structured programming techniques and procedures for

more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 261—Computer Programming: Assembler II (4 CR.) Prerequisite CIS 161. Emphasizes advanced structured programming techniques and procedures for more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 265—Computer Programming: Micro Assembler (4 CR.) Teaches writing and debugging of programs in a manufacturer's assembly language for microcomputer. Focuses on the principles of debugging and core-dump reading. Uses a micro-assembly language in a total programming system. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 275—Computer Programming: ADA II (4 CR.) Prerequisite CIS 175. Emphasizes advanced structured programming techniques and procedures for more complex problems. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 285—Data Processing Management (3 CR.) Focuses on management of data processing functions. Offers various techniques involved in planning, estimating and analyzing requirements, and selecting systems. Includes costing of benefits, contractual considerations and lease/purchase studies. Lecture 3 hours per week.

CIS 286—Computer Programming Applications (4 CR.) Prerequisite: CIS 225. Uses a previously mastered higher level language to develop a computerized solution to business applications. Requires the implementation of valid techniques used in systems analysis, programming, and documentation. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CIS 287—System Development Project (3 CR.) Prerequisite CIS 225. Applies life cycle system development methodologies in a case study. Incorporates feasibility study, system analysis, system design, program specification, and implementation planning. Involves assigning project to students as members of system development teams. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

Computer Science (CSC)

CSC 100—Introduction to Computer Usage (1 CR.) Teaches fundamental skills of computer operation. Examines hardware (processor, keyboard, disk drives, and printers) and operating systems and editors. Lecture 1 hour per week.

CSC 110—Introduction to Computing (3 CR.) Corequisite: MTH 171 or equivalent. Introduces problem solving via a programming language. Examines development of computers, social and ethical implications of computers, and properties of programming languages. Covers input, storage, data manipulation, software and hardware. Lecture 3 hours per week.

CSC 201—Computer Science I (4 CR.) Corequisite MTH 173 or equivalent. Introduces algorithm and problem-solving methods. Emphasizes structured programming concepts, elementary data structures and the study and use of a high level programming language. Lecture 4 hours per week.

CSC 202—Computer Science II (4 CR.) Prerequisite CSC 201. Corequisite MTH 174. Examines data structures and algorithm analysis. Covers data structures (including sets, strings, stacks, queues, arrays, records, files, linked lists, and trees), abstract data types, algorithm analysis (including searching and sorting methods), and file structures. Lecture 4 hours per week.

CSC 205—Computer Organization (3 CR.) Prerequisite CSC 202. Examines the hierarchical structure of computer architecture. Focuses on multi-level machine organization used with a simple assembler language. Includes processors, instruction execution, addressing techniques, data representation and digital logic. Lecture 3 hours per week.

CSC 206—Assembly Language (3 CR.) Prerequisite CSC 205. Examines assembly language programming. Includes the use of macros, linkers, loaders, assemblers and interfacing of assembly language with hardware components. Lecture 3 hours per week.

Dental Hygiene (DNH)

DNH 111—Oral Anatomy (2 CR.) Studies the morphology and function of the oral structures with emphasis on the primary and permanent dentition, eruption sequence, occlusion, and intra-arch relationships. Lecture 2 hours per week.

DNH 115—Histology/Head and Neck Anatomy (3 CR.) Presents a study of the microscopic and macroscopic anatomy and physiology of the head, neck, and oral tissues. Includes embryologic development and histologic components of the head, neck, teeth, and periodontium. Lecture 3 hours per week.

DNH 120—Management of Emergencies (1 CR.) Studies the various medical emergencies and techniques for managing emergencies in the dental setting. Lecture 1 hour per week.

DNH 131—Oral Radiography for the Dental Hygienist (2 CR.) Studies radiation physics, biology, safety, and exposure techniques for intra- and extra-oral radiographic surveys. Laboratory provides practice in exposure, processing methods, mounting, and interpretation of normal findings. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

DNH 141—Dental Hygiene I (5 CR.) Introduces clinical knowledge and skills for the performance of dental hygiene services; basic skill components, lab mannequins, and patient practice. Lecture 3 hours. Clinic 6 hours. Total 9 hours per week.

DNH 142—Dental Hygiene II (5 CR.) Prerequisite DNH 141. Exposes students to instrument sharpening, time management, and patient education techniques and methods. Provides supervised clinical practice in the dental hygiene clinic with emphasis on developing patient treatment and instrument skills. Lecture 1 hour. Clinic 12 hours. Total 13 hours per week.

DNH 143—Dental Hygiene III (4 CR.) Introduces dental health care for patients with special needs. Provides supervised clinical practice in the dental hygiene clinic with emphasis on refining patient treatment and instrumentation skills, including oral radiographs. Lecture 2 hours. Clinic 6 hours. Total 8 hours per week.

DNH 145—General and Oral Pathology (2 CR.) Introduces 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 2 hours per week.

DNH 146—Periodontics for the Dental Hygienist (2 CR.) Introduces the theoretical and practical study of

various concepts and methods used in describing, preventing, and controlling periodontal disease. Presents etiology, microbiology, diagnosis, treatment and prognosis of diseases. Lecture 2 hours per week.

DNH 150—Nutrition (2 CR.) Studies nutrition as it relates to dentistry and general health. Emphasizes the principles of nutrition as applied to the clinical practice of dental hygiene. Lecture 2 hours per week.

DNH 190—Dental Hygiene Coordinated Practice (4 CR.) Continues supervised clinical practice in the dental hygiene clinic with emphasis on radiographic interpretation, coordinating didactic and clinical skills, and refining patient treatment skills. Introduces special needs patients and treatment modifications, and radiographic interpretation of pathologic findings. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

DNH 210—Application of Periodontics (1 CR.) Prerequisite DNH 146. Exposes students to the surgical aspects of periodontal therapy and the role of the hygienist in surgery and maintenance. Lecture 1 hour per week.

DNH 215—Dental Materials (3 CR.) Studies the physical and chemical properties of the materials used in dentistry. Laboratory experiences emphasize proper manipulation of materials. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

DNH 216—Pharmacology (2 CR.) Studies the chemical and therapeutic agents used in dentistry, including their preparation, effectiveness, and specific application. Lecture 2 hours per week.

DNH 221—Community Health I (1 CR.) Introduces public/community health concepts and problems, epidemiology and statistics as applied to dental public health. Includes introduction to health planning and program implementation. Lecture 1 hour per week.

DNH 222—Community Health II (2 CR.) Prerequisite DNH 221 Community Health I. Applies 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.

DNH 230—Office Practice and Ethics (1 CR.) Studies the principles of dental ethics and economics as they relate to the dental hygienist. The course also includes a study of jurisprudence and office procedures. Lecture 1 hour per week.

DNH 244—Dental Hygiene IV (5 CR.) Prerequisite DNH 143. Introduces advanced skills and the dental hygienist's role in dental specialties. Includes supervised clinical practice in the dental hygiene clinic and/or off-campus clinical rotations at various community facilities. Emphasizes treatment of patients demonstrating periodontal involvement, stressing application and correlation of knowledge and skills from previous semesters. Lecture 1 hour. Clinic 12 hours. Total 13 hours per week.

DNH 245—Dental Hygiene V (5 CR.) Prerequisite DNH 244. Exposes student to dental assisting skills and current advances in dentistry. Includes supervised clinical practice in the dental hygiene clinic and/or off-campus clinical rotations at various community facilities. Emphasis is placed on synthesis of knowledge from previous semesters, treatment of patients with moderate to advanced periodontal involvement, and improving clinical speed while maintaining quality in preparation for practice. Lecture 1 hour. Clinic 12 hours. Total 13 hours per week.

Drafting (DRF)

DRF 111-112-113—Technical Drafting I-II-III (2-CR.) (2 CR.) (2 CR.) Introduces technical drafting from the fundamentals through advanced drafting practices. Teaches lettering, metric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners, theory, and applications of dimensioning and tolerances. Includes pictorial drawing, and preparation of working and detailed drawings. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

DRF 161—Blueprint Reading I (2 CR.) Teaches the application of basic principles, visualization, orthographic projection, detail of drafting shop process and terminology, assembly drawings and exploded views. Considers dimensioning, changes, and corrections, classes of fits, tolerances and allowances, sections and convention in blueprint reading. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

DRF 201—Computer Aided Drafting and Design I (2 CR.) Prerequisite: DRF 111 or equivalent or departmental approval. Teaches computer-aided drafting concepts and equipment designed to develop a general understanding of components of a typical CAD system and its operation. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

DRF 202—Computer Aided Drafting and Design II (2 CR.) Prerequisite DRF 201. Teaches working drawings and advanced operations in computer aided drafting. Lecture 1 hours. Laboratory 3 hours. Total 4 hours per week.

Early Childhood Development (CHD)

CHD 108—Education Enrichment for Children (7 CR.) Investigates theories and practices of learning in home settings. Teaches skills of observation and recordkeeping, short and extended excursions, social and cultural enrichment, and investigation of community resources. Lecture 4 hours. Laboratory 8 hours. Total 12 hours per week.

CHD 109—Methods in Movement and Music Education for Children (3 CR.) Emphasizes theory and practice in movement and music education and the integration of these skills in a curriculum. Designed for teachers and aides in child care, preschool, nursery, or primary schools. Variable lecture/laboratory hours per week.

CHD 118—Methods and Materials in the Language Arts for Children (3 CR.) Presents techniques and methods for encouraging the development of language and perceptional skills in young children. Stresses improvement of vocabulary, speech, and methods to stimulate discussion. Surveys children's literature, examines elements of quality storytelling and story reading, and stresses the use of audio-visual materials. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week.

CHD 120—Introduction to Early Childhood Education (3 CR.) Introduces early childhood development through activities and experiences in nursery, pre-kindergarten, kindergarten, and primary programs. Investigates

classroom organization and procedures, and use of classroom time and materials, approaches to education for young children, professionalism, and curricular procedures. Lecture 3 hours per week.

CHD 121-122—Childhood Educational Development I-II (3 CR.) (3 CR.) Focuses attention on the observable characteristics of children from birth through adolescence. Concentrates on cognitive, physical, social, and emotional changes that occur. Emphasizes the relationship between development and child's interactions with parents, siblings, peers, and teachers. Lecture 3 hours per week.

CHD 125—Creative Activities for Children (3 CR.) Prepares individuals to work with young children in the arts and other creative age-appropriate activities. Investigates affective classroom experiences and open-ended activities. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

CHD 126—Methods and Materials for Developing Science and Mathematical Concepts in Children (3 CR.) Teaches selecting developmentally appropriate learning activities using materials to develop logical thinking skills in the child. Lecture 3 hours per week.

CHD 129—Learning Disabilities (3 CR.) Focuses on identification and assessment of specific learning problems. Includes a survey of 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.

CHD 145—Methods and Materials for Teaching Art, Music, and Movement to Children (3 CR.) Provides experiences in developing the content, methods, and materials for directing children in art, music, and movement activities. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

CHD 146—Methods and Materials for Teaching Math, Science, and Social Studies to Children (3 CR.) Provides experiences in developing the content, methods, and materials for directing children in math, science, and social studies activities. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

CHD 155—Parent Education (3 CR.) Focuses on an introduction to effective parent/child communication and interaction, with special emphasis on listening skills, responsibility, encouragement, growth, problem-solving process, and discipline. Lecture 3 hours per week.

CHD 156—Single-Parent Families (3 CR.) Discusses issues surrounding single-parent families and the causal factor including: separation, divorce, death, and teenage pregnancies. Explores the effects on both the parent and the child. Familiarizes students with services available in the community that support the single-parent family. Lecture 3 hours per week.

CHD 157—Parents of the Special Needs Child (3 CR.) Guides the parent to cope with special problems of the child including giftedness, mental retardation, learning disorders, and physical handicaps. Investigates services available in the community that support both parent and child. Lecture 3 hours per week.

CHD 158—Introduction to Family Home Care (3 CR.) Introduces skills in caring for young children in home settings. Provides insights to nutrition, safety, age-appropriate activities, and the characteristics of young children. Lecture 3 hours per week.

CHD 160—Techniques of Observation in Early Education (3 CR.) Introduces formal and informal methods of gathering data on children. Emphasis on understanding developmental patterns and implications for diagnostic teaching. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

CHD 165—Observation and Participation in Early Childhood/ Primary Settings (3 CR.) Observes and participates in early childhood settings such as child care centers, pre-schools, Montessori schools or public school settings. Kindergarten through 3rd grade. Students spend one hour each week in a seminar session in addition to 60 clock hours in the field. May be taken again for credit. Lecture 1 hour. Laboratory 6 hours. Total 7 hours per week.

CHD 166—Infant and Toddler Programs (3 CR.) Examines the fundamentals of infant and toddler development, including planning and implementing programs in group care. Emphasizes meeting physical, social, emotional, and cognitive needs: scheduling, preparing age-appropriate activities, health and safety policies, record keeping, and reporting to parents. Lecture 3 hours per week.

CHD 167—Resource Development for the Child Development Associate (CDA) Candidate (1 CR.) Supports the CDA candidate in organizing and developing a portfolio for presentation at local assessment team meeting. Lecture 1 hour per week.

CHD 205—Guiding the Behavior of Children (3 CR.) Explores positive ways to build self-esteem in children and help them develop self-control. Presents practical ideas for encouraging pro-social behavior in children and emphasizes basic skills and techniques in classroom management. Lecture 3 hours per week.

CHD 206—Perceptual Motor Development (3 CR.) Emphasizes the selection of activities that influence the development of perceptual motor skills in young children. Describes perceptual motor theory and practical application in child care programs. Lecture 3 hours per week.

CHD 207—Infant Stimulation and Related Parent Training (4 CR.) Provides advanced skill competencies in direct intervention strategies for working with handicapped infants from birth through pre-school ages. Presents additional competencies in those skills required for working in cooperation with the child's family as a trainer and intermediate level evaluator. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

CHD 210—Introduction to Exceptional Children (3 CR.) Reviews the history of education for exceptional children. Studies the characteristics associated with exceptional children. Explores positive techniques for managing behavior and adapting materials for classroom use. Lecture 3 hours per week.

CHD 215—Models of Early Childhood Education Programs (3 CR.) Studies and discusses the various models and theories of early childhood education programs including current trends and issues. Presents state licensing and staff requirements. Lecture 3 hours per week.

CHD 216—Early Childhood Programs, School, and Social Change (3 CR.) Explores methods of developing positive, effective relations between staff and parents to enhance the developmental goals of home and school. Reviews current trends and issues in education, describes symptoms of homes in need of support,

investigates non-traditional family and cultural patterns, and lists community resources. Lecture 3 hours per week.

CHD 218—Child Study (3 CR.) Presents advanced methods of child study, theories of child development, implications for direct work with children. May include a case study of an individual child. Lecture 3 hours per week.

CHD 235—Health, Safety, and Nutrition Education (3 CR.) Focuses on the physical needs of children and explores strategies to meet these needs. Emphasizes positive health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety. Places emphasis on the development of food habits and concerns in food and nutrition. Describes symptoms and reporting procedures for child abuse. Variable lecture/laboratory hours per week.

CHD 265—Advanced Observation and Participation in Early Childhood/Primary Settings (3 CR.) Observes and participates in early childhood settings such as child care centers, pre-school, Montessori schools, or public school settings (kindergarten through third grade). Emphasizes planning and implementation of appropriate activities and materials for children. Students will spend one hour each week in a seminar session in addition to 60 clock hours in the field. May be taken again for credit. Lecture 1 hour. Laboratory 6 hours. Total 7 hours per week.

CHD 268—Advanced Observation and Participation in Elementary/Middle/Secondary Settings (3 CR.) Observes and participates in elementary, middle, or high school settings. Emphasizes planning and implementation of appropriate activities and materials for children. Students will spend one hour each week in a seminar session in addition to 60 clock hours in the field. May be taken again for credit. Lecture 1 hour. Laboratory 6 hours. Total 7 hours per week.

CHD 270—Administration of Early Childhood Programs (3 CR.) Examines the skills needed for establishing and managing early childhood programs. Emphasizes professionalism and interpersonal skills, program planning, staff selection and development, creating policies, budgeting, and developing forms for recordkeeping. Lecture 3 hours per week.

Economics (ECO)

ECO 110—Consumer Economics (3 CR.) Fosters understanding of American economic system and the individual's role as a consumer. Emphasizes application of economic principles to practical problems encountered. Alerts students to opportunities, dangers, and alternatives of consumers. Lecture 3 hours per week.

ECO 120—Survey of Economics (3 CR.) Presents a broad overview of economic theory, history, development, and application. Introduces terms, definitions, policies, and philosophies of market economies. Provides some comparison with other economic systems. Includes some degree of exposure to microeconomic and macroeconomic concepts. Lecture 3 hours per week.

ECO 201-202—Principles of Economics I-II (3 CR.) (3 CR.) Introduces macroeconomic and microeconomic principles and considers their bearing on present conditions. Describes structural and functional aspects of the economy. Analyzes the organization of business, labor, and governmental institutions and their economic stability and growth. Presents measures of economic activity. Discusses private enterprise, economic growth and stabilization policies, monetary and fiscal policy. Considers international economic relationships and alternative economic systems. Lecture 3 hours per week.

ECO 205—Economics of Public Choice (3 CR.) Prerequisite ECO 120 or ECO 201. Presents the economic rationale of decision-making in the public sector. Focuses on issues related to public goods, externalities, cost-benefit analysis, and other budgetary tools. Lecture 3 hours per week.

ECO 206—Managerial Economics (3 CR.) Prerequisite ECO 120 or ECO 201. Emphasizes microeconomic theory, focusing on decision-making in differing market structures. Details theoretical and quantitative approaches to such operational issues as price and output determination, profit maximization, loss minimization, and shut-down cases. Prepares students to view managerial decisions from the standpoint of a microeconomic base. Lecture 3 hours per week.

ECO 230—Money and Banking (3 CR.) Reviews history of American banking institutions, principles, and practices. Emphasizes the relationship of finances to business structure, operation, and organization. Examines present financial structures, agents, problems, and institutions. Lecture 3 hours per week.

ECO 231-232—Principles of Money and Banking I-II (3 CR.) (3 CR.) Discusses the functions of money in modern economy. Analyzes the evolution and operation of the commercial and central banking systems. Presents developments in monetary theory. Relates theory to policy considerations including government finance and debt management. Lecture 3 hours per week.

ECO 245—Contemporary Economic Issues (3 CR.) Prerequisite ECO 201. Presents major contemporary economic issues of the day. May focus on issues such as energy, the environment, the farmer, the national debt, taxes, international trade, consumerism, and economic trends. Emphasizes proper analysis of economic problems and formulation of corrective policy. Develops the student's critical faculties by exposure to opinions of eminent economists and may offer open classroom debate. Lecture 3 hours per week.

ECO 255—Economics, Business, and Public Policy (3 CR.) Prerequisite ECO 202. Focuses on preparing the student to use the tools of economics analysis to assess the cost and benefit of societal (governmental) regulation on business and develops the student's understanding of the problems facing business firms in adjusting themselves to this regulation. Lecture 3 hours per week.

Education (EDU)
see also
Early Childhood Development (CHD)

EDU 100—Introduction to Education (1 CR.) Provides an overview of teaching as a career with orientation to theories, practices, responsibilities, guidelines, current trends, and issues in education. Lecture 1 hour per week.

Electrical Technology (ELE)

ELE 110—Home Electric Power (3 CR.) Prerequisite: ELE 133 or equivalent. Covers the fundamentals of residential power distribution, circuits, panels, fuse boxes,

breakers, transformers. Includes study of the national electrical code, purpose, and interpretation. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

ELE 119—Electrical Shop Practices (1 CR.) Develops skills in the use of hand tools commonly found in the electrical and electronic industries. Covers soldering practices and P. C. board fabrication and repair. May require a variety of projects. Laboratory 3 hours per week.

ELE 126—Electricity and Shop Power Distribution (2 CR.) Teaches basic electricity and shop power distribution systems to acquaint the industrial machine mechanic with the nature and requirements of electrical power and machinery. Includes the nature of electricity, basic DC and AC circuits, power requirements, protection systems, basic measurements, and safety precautions. May require preparation of a report as an out-of-class activity. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

ELE 133-134—Practical Electricity I-II (3 CR.) (3 CR.) Prerequisite: general math proficiency. Teaches the fundamentals of electricity, terminology, symbols, and diagrams. Includes the principles essential to the understanding of general practices, safety, and the practical aspects of residential and non-residential wiring and electrical installation. May require preparation of a report as an out-of-class activity. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

ELE 138—National Electrical Code (2 CR.) Teaches purpose and interpretation of the National Electrical Code as well as familiarizations with various charts, code rulings, and wiring methods. Lecture 2 hours per week.

ELE 150—A.C. and D.C. Circuit Fundamentals (3 CR.) Provides an intensive study of the fundamentals of direct and alternating current, resistance, magnetism, inductance and capacitance, with emphasis on practical applications. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

ELE 211—Electrical Machines I (5 CR.) Prerequisite: ETR 132, MTH 114. Studies the construction, theory of operations and applications of DC and AC machines. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

Electronics Technology (ETR)

ETR 100—Electronic Problem-Solving Laboratory (1 CR.) Corequisite: ETR 113. Focuses on enabling the student to improve skills in various areas of study. May include electronic measurements, circuit assembly, troubleshooting circuits, and computer applications to problem solving. Laboratory 3 hours per week.

ETR 113—D.C. and A.C. Fundamentals (4 CR.) Prerequisite: Algebra I. Studies D.C. and A.C. circuits, basic electrical components, instruments, network theorems, and techniques used to predict, analyze and measure electrical quantities. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ETR 123—Electronic Applications I (2 CR.) Corequisite: ETR 141. Provides laboratory and shop assignment/jobs as applied to basic electronic devices, circuits, and systems with emphasis on practical measurements. May require preparation of a report as an out-of-class activity. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

ETR 131-132—Electrical Circuits I-II (5 CR.) (5 CR.) Corequisite: MTH 113-114. Studies D.C. and A. C. circuits, basic electrical components, instruments, laws and techniques used to predict, analyze, and measure electrical quantities. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

ETR 141-142—Electronics I-II (3 CR.) (3 CR.) Prerequisite: ETR 113. Introduces electronic devices as applied to basic electronic circuits and systems. Lecture 3 hours per week.

ETR 148—Amplifiers and Integrated Circuits (4 CR.) Prerequisite: ETR 113. Studies amplifiers, solid state and thermionic devices with emphasis on analysis and design of the time and frequency domain. Included also are linear and nonlinear op-amps circuits. May include summing and integrating amplifiers, choppers, modulators, and other new devices. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ETR 160—Survey of Microprocessors (4 CR.) Provides an overview of microprocessor architecture, basic machine language programming, and I/O devices. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ETR 220—Introduction to Communication Systems (5 CR.) Prerequisite: ETR 251, ETR 280. Introduces techniques, applications, design principles and regulation of digital and analog communication systems including mobile and base station radio transmitters and receivers. Includes the use of test equipment in measurements and troubleshooting techniques. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

ETR 231—Principles of Lasers and Fiber Optics (3 CR.) Prerequisite: MTH 114, PHY 101. Teaches the theory and application of lasers and fiber optics. Includes optics, fiber optic cables and connectors, photo detectors, optical pulse generation, sensors, multiplexers, lasers, gas lasers, semiconductor lasers, laser safety, and laser test instruments. May include preparation of a report as an out-of-class activity. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

ETR 235—Optical Electronics (2 CR.) Deals with lasers, fiber optics, LEDs, light devices, and interfacing. Lecture 2 hours per week.

ETR 241—Electronic Communications (4 CR.) Prerequisite: ETR 251. Studies noise, information and bandwidth, modulation and demodulation, transmitters and receivers, wave propagation, antennas and transmission lines. May include broad band communication systems, microwave, both terrestrial and satellite, fiber optics, multiplexing and associated hardware. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ETR 251-252—Electronic Devices and Circuit Analysis I-II (6 CR.) (6 CR.) Prerequisite: MTH 114, ETR 132. Teaches theory and operation of semiconductor diodes, switch devices, regulators and power supplies. Includes discrete transistor and IC amplifier operating characteristics and design considerations for small and large signal amplifiers. Discusses theory and applications of feedback of amplifiers. Lecture 5 hours. Laboratory 3 hours. Total 8 hours per week.

ETR 265—Advanced Microprocessors (5 CR.) Prerequisite: ETR 280. Provides an in-depth treatment of microprocessors including machine level programming,

memory structure, serial and parallel I/O devices. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

ETR 276—Computer Controls (4 CR.) Prerequisite: 211, ETR 265. Teaches microcomputer applications and Interfacing for the control of industrial devices and processes. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

ETR 280—Introduction to Digital Logic Circuits and Computers (4 CR.) Prerequisite: ETR 132. Studies digital logic, Boolean algebra, and arithmetic circuits, using standard integrated circuits and the functional block approach. May include the study of registers, encoding and decoding, and multiplexing. Introduces concepts of computers, the internal operation and control language. Lecture 3 hours. Laboratory. Total 6 hours per week.

ETR 281—Digital Systems I (3 CR.) Prerequisite: ETR 148. Includes basic numbering systems, Boolean algebra, logic circuits and systems, pulse circuits and pulse logic systems as applied to computer and microprocessor technology. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

ETR 285—Fundamentals of Microcomputer Repair (4 CR.) Provides the student with an exposure to the various techniques and procedures used to troubleshoot a microcomputer. May include an overview of a particular microprocessor system, use of isolation flow charts, test point charts, prints, diagnostic routines, component testing and fault isolation labs. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

Emergency Medical Technology (EMT)

EMT 105—First Responder (3 CR.) Provides knowledge and proficiency in basic life support and in actions necessary to minimize patient discomfort and prevention of further complications. Meets requirements for Virginia certification as a first responder. Lecture 3 hours per week.

EMT 110—Emergency Medical Services System Overview (3 CR.) Studies history and development of emergency medical services systems, funding alternatives, system design alternatives, system components, and system evaluation. Considers role of EMS councils, training levels for pre-hospital providers, hospital categorization, disaster plans, and public education needs. Lecture 3 hours per week.

EMT 111—Emergency Medical Technology I (3 CR.) Provides instruction in basic life support, physical assessment. Introduces role and responsibilities of the emergency medical technician/ambulance. Includes emergency operations, anatomy and physiology, bleeding, shock, MASTrousers, cardio-pulmonary resuscitation, soft tissue injuries, fractures and dislocations, abdominal and chest injuries. Required for certification as a Virginia EMT/A. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

EMT 112—Emergency Medical Technology II (3 CR.) Prerequisite EMT 111. Continues material begun in EMT 112. Includes major trauma and medical emergencies, emergency childbirth procedures, lifting and moving patients, vehicle extrication, pediatric and environmental emergencies, and mass casualty situations. Required for certification as a Virginia EMT/A. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

Engineering (EGR)

EGR 100—Engineering Technology Orientation (1 CR.) Corequisite: MTH 103 or equivalent. Focuses on the roles and responsibilities of the engineering team, professional ethics, problem solving with hand calculator and computer applications. Lecture 1 hour. Laboratory 1 hours. Total 2 hours per week.

EGR 115—Engineering Graphics (2 CR.) Corequisite: MTH 171 or equivalent. Applies principles of orthographic projection and multi-view drawings. Teaches descriptive geometry including relationships of points, lines, planes and solids. Introduces sectioning, dimensioning, and computer graphic techniques. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

EGR 120—Introduction to Engineering (2 CR.) Corequisite: MTH 171 or equivalent. Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer, operating systems and processing, engineering problem solving, and graphic techniques. Lecture 2 hours per week.

EGR 125—Introduction to Engineering Methods (3 CR.) Prerequisite: EGR 120, MTH 171 or equivalent. Applies problem-solving techniques to engineering problems utilizing computer programming and algorithms in a higher level computer language such as FORTRAN. Includes advanced graphics techniques. Lecture 3 hours per week.

EGR 140—Engineering Mechanics—Statics (3 CR.) Prerequisite: MTH 173. Introduces mechanics of vector forces and space, scalar mass and time, including S.I. and U.S. customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroids, moments of inertia analysis of two-force and multi-force members. Lecture 3 hours per week.

EGR 245—Engineering Mechanics—Dynamics (3 CR.) Prerequisite: EGR 140. Presents approach to kinematics of particles in linear and curvilinear motion. Includes kinematics of rigid bodies in plane motion. Teaches Newton's second law, work-energy and power, impulse and momentum, and problem solving using computers. Lecture 3 hours per week.

EGR 246—Mechanics of Materials (3 CR.) Prerequisite: EGR 140. Teaches concepts of stress, strain, deformation, internal equilibrium, and basic properties of engineering materials. Analyzes axial loads, torsion, bending, shear and combined loading. Studies stress transformation and principle stresses, column analysis and energy principles. Lecture 3 hours per week.

English (ENG)

ENG 01—Preparing for College Writing I (1-6 CR.) Helps students discover and develop writing processes needed to bring their proficiency to the level necessary for entrance into their respective curricula. Guides students through the process of starting, composing, revising, and editing. Variable hours per week.

ENG 02—Spelling and Vocabulary Study (1-6 CR.) Helps students to improve spelling and develop vocabulary. Reviews common spelling patterns. Familiarizes the student with basic prefixes, suffixes, root words, and other word formations. Teaches effective

use of the dictionary and thesaurus. Stresses recognizing words in reading context and using them effectively in writing. Variable lecture/laboratory hours per week.

ENG 04—Reading Improvement I (1-6 CR.) Helps students improve their reading processes to increase their understanding of reading materials. Includes word forms and meanings, comprehension techniques, and ways to control reading pace. Variable hours per week.

ENG 101-102—Practical Writing I-II (3 CR.) (3 CR.) Develops writing ability for study, work, and other areas of life with emphasis on occupational correspondence and reports. Guides students in learning writing as a process: understanding audience and purpose, exploring ideas and information, composing, revising, and editing. Supports writing by integrating experiences in thinking, reading, listening, and speaking. Lecture 3 hours per week.

ENG 106—Speed Reading (3 CR.) Emphasizes reading faster with comprehension. Includes controlling pace through scanning for specific details, skimming for main ideas, and reading quickly but completely. Presents common ways reading material is organized and techniques for processing information rapidly. Lecture 3 hours per week.

ENG 111-112—College Composition I-II (3 CR.) (3 CR.) Develops writing ability for study, work, and other areas of writing based on experience, observation, research, and reading of selected literature. Guides students in learning writing as a process: understanding audience and purpose, exploring ideas and information, composing, revising, and editing. Supports writing by integrating, composing, revising, and editing. Supports writing by integrating experiences in thinking, reading, listening, and speaking. Lecture 3 hours per week.

ENG 135—Applied Grammar (3 CR.) Develops ability to edit and proofread correspondence and other documents typically produced in business and industry. Instructs the student in applying conventions of grammar, usage, punctuation, spelling, and mechanics. Lecture 3 hours per week.

ENG 211-212—Creative Writing I-II (3 CR.) (3 CR.) Introduces the student to the fundamentals of writing imaginatively. Students write in forms to be selected from poetry, fiction, drama, and essays. Lecture 3 hours per week.

ENG 241-242—Survey of American Literature I-II (3 CR.) (3 CR.) Prerequisite ENG 112. Examines American literary works from colonial times to the present, emphasizing the ideas and characteristics of our national literature. Involves critical reading and writing. Lecture 3 hours per week.

ENG 243-244—Survey of English Literature I-II (3 CR.) (3 CR.) Prerequisite ENG 112. Studies major English works from the Anglo-Saxon period to the present, emphasizing ideas and characteristics of the British literary tradition. Involves critical reading and writing. Lecture 3 hours per week.

English as a Second Language (ESL)

ESL 14—English as a Second Language: Oral and Written Communications I (3-6 CR.) Provides practice in the sound, stress, intonation, structural patterns, grammar, vocabulary, and idioms of beginning-level English in frequently encountered situations. Variable hours per week.

ESL 15—English as a Second Language: Oral and Written Communications II (3-6 CR.) Provides practice in the sound, stress, intonation, structural patterns, grammar, vocabulary, and idioms of intermediate-level English in frequently encountered situations. Variable hours per week.

Financial Services (FIN)

FIN 110—Principles of Banking (3 CR.) Presents nearly every aspect of banking, providing a comprehensive introduction to the diversified services and operations of the banking industry. Focuses on new trends gaining attention in banking circles. Recommended for all banking students. Lecture 3 hours per week.

FIN 118—Deposit Accounts and Services (2-3 CR.) Examines ownership rights and characteristics of each form of account ownership; regulations pertaining to regular savings accounts, certificates of deposit, access and retirement accounts; and various convenience, credit, trust, and brokerage services available to savings institution customers. Lecture 2-3 hours per week.

FIN 129—Now Accounts (2-3 CR.) Examines the basic legal requirements for NOW accounts, differences between NOW and other checking accounts, roles of the Federal Reserve and the Federal Home Loan Bank and procedures involved with related data processing systems. Lecture 2-3 hours per week.

FIN 130—Introduction to Savings Association Business (2-3 CR.) Examines the origins, nature, and development of the savings association and its place in the economic fabric of the U.S. Explores environment for financial intermediaries, emphasizing savings associations. Analyzes major institutions competitive with savings associations in field of finance and investment. Describes organization, chartering, and function of savings associations, and identifies problems and trends in the current business world. Lecture 2-3 hours per week.

FIN 131—Savings and Loan Accounting I (2-3 CR.) Introduces accounting principles, procedures, and practices as they apply to savings institutions. Examines the financial relationship among the various functions of a savings institution. Lecture 2-3 hours per week.

FIN 132—Savings and Loan Accounting II (2-3 CR.) Prerequisite: FIN 131. Examines accounting procedures for inventory, depreciation, branches, consolidations, inflation adjustments, budgeting, and ratio analysis. Covers accepted accounting practices and procedures for savings institutions and stock corporations. Lecture 2-3 hours per week.

FIN 133—Financial Institutions (2-3 CR.) Prerequisite FIN 130. Evaluates the economic role of financial intermediaries and the financial interrelationships among the several types of such institutions in the U.S. Focuses on differences in structure and function of these financial intermediaries. Studies role of Federal Reserve System and effect of reserves on expansion and contraction of loanable funds. Explores the ways that financial institutions can alter their structure through holding companies and branching. Lecture 2-3 hours per week.

FIN 134—Teller Operations (2-3 CR.) Prerequisite FIN 130. Examines the role of the teller in creation and maintenance of good customer relations. Describes routine and special teller procedures. Summarizes requirements of check negotiability and acceptability.

Identifies the various types of savings instruments and ownership. Outlines recommended procedures in event of fire, robbery, or other emergencies. Lecture 2-3 hours per week.

FIN 135—Savings Association Operations (2-3 CR.) Prerequisite FIN 130. Identifies primary operating areas of a savings association and basic functions of each area. Defines and studies major terms related to functions in these areas. Examines responsibilities of savings associations and how they are affected by government regulations and other external factors. Covers interrelationship of personnel and operating functions. Lecture 2-3 hours per week.

FIN 136—Savings Accounts Administration (3 CR.) Prerequisite FIN 130. Examines insuring agency, insurance contract, and insurance coverage for accounts in savings associations. Describes procedures for opening savings accounts, handling inactive or dormant accounts, administering loans secured by savings accounts, and instituting creditor actions in reaching debtor's accounts. Studies relationship of liquidity levels and savings withdrawals. Discusses advertising of savings accounts and other association services. Lecture 3 hours per week.

FIN 137—Real Estate Law—Savings and Loan (3 CR.) Familiarizes those working in savings and loan associations with the legal aspects of real estate transactions. Introduces the history and terminology of real estate law. Examines such topics as mortgages, land development, zoning and building ordinances, taxes, and mortgage loan processing and servicing. Emphasizes obligations of mortgage loan officer. Lecture 3 hours per week.

FIN 138—Savings Accounts (3 CR.) Prerequisite FIN 130. Emphasizes importance of savings in the economy. Explores features of savings accounts and other types of time deposits. Describes contractual nature of savings accounts and other investment instruments. Analyzes the various categories of savings and time deposits in order to assist customers in understanding the aspects of ownership. Lecture 3 hours per week.

FIN 140—Introduction to Credit Unions (3 CR.) Explores such facets of the credit union as history, operation, powers, and nature of credit union services. Covers role and programs developed by unions. Lecture 3 hours per week.

FIN 141—Principles of Credit Union Operations I (3 CR.) Prerequisite FIN 140. Presents functions of teller transactions, loan approval, financial counseling, and collection procedures and systems. Addresses such topics as delinquency control and current regulations and policies governing credit unions. Lecture 3 hours per week.

FIN 142—Principles of Credit Union Operations II (3 CR.) Prerequisite FIN 141. Examines the financial management skills necessary to operate a credit union. Emphasizes implications of risk management and insurance. Explores investment procedures and teaches use of sound accounting principles. Lecture 3 hours per week.

FIN 161—Real Estate Principles for Savings Institutions I (2-3 CR.) Examines the relationship of real estate and its management to the savings institution business. Includes contracts, valuation, decision-making factors, related institutions and agencies, mortgage-lending policies, and minimization of lending risks. Lecture 2-3 hours per week.

FIN 165—Techniques for Customer Counseling (2-3 CR.) Examines the financial needs and problems of savings institution customers, strategies to elicit the kinds of customer responses needed in a given situation, techniques for establishing rapport and confidences between employee and customer, and methods of cross-selling applicable to the consumer counselor. Lecture 2-3 hours per week.

FIN 168—Mortgage Loan Servicing (2-3 CR.) Prerequisite FIN 130. Presents an overview of the scope of the mortgage loan market. Examines ortgage loan processing and role of mortgage loan officer in overall portfolio management. Covers loan servicing procedures for conventional, FHA, and VA loans. Explores the differences between whole loans and participations. Studies procedures for role and servicing of mortgage loans. Lecture 2-3 hours per week.

FIN 215—Financial Management (3 CR.) Prerequisite: ACC 212, ACC 214. Introduces the process of identifying and solving financial problems confronting the business enterprise. Includes topics such as the basic tools of financial analysis, working capital, capital budgeting, and long-term financing. Uses problems and cases to enhance skills in financial planning and decision making. Lecture 3 hours per week.

Fire Science (FIR)

FIR 100—Introduction to Fire Science (3 CR.) Introduces basic concepts involved in fire suppression including fire behavior, building codes built in protection systems, and the life safety code. Discusses the history and philosophy of the fire service at the national, state, and local levels and analyzes the overall fire problem. Lecture 3 hours per week.

FIR 105—Fire Suppression Operations (3 CR.) Introduces the fundamentals of firefighting and the purpose of the techniques used to combat unfriendly fire. Explores fire behavior and basic physical and chemical laws of thermal dynamics so student may understand the quick operational decisions made on the fireground. Lecture 3 hours per week.

FIR 106—Fire Suppression Methods and Operations (3 CR.) Prerequisite FIR 100 or divisional permission. Introduces the concepts of emergency management and incident command. Discusses basic concepts of fire suppression and incident control, including the establishment of priorities, size-up, strategic goals and tactical objectives. Lecture 3 hours per week.

FIR 107—Fluid Mechanics (3 CR.) Defines the requirements for an adequate water supply for fire protection purposes. Examines the physical aspects of water supply technology. Develops practical applied principles of fluid mechanics necessary for fire suppression activities on the fireground. Lecture 3 hours per week.

FIR 111—Hazardous Materials I (3 CR.) Introduces the chemistry of hazardous materials including solids, liquids, gases, and methods used in their identification. Examines the use, handling, transportation, and environmental problems associated with hazardous materials. Lecture 3 hours per week.

FIR 115—Fundamentals of Fire Prevention (3 CR.) Introduces fire safety through study of fire causes,

inspections and investigation procedures. Familiarizes students with laws, ordinances, and codes which influence the field of fire prevention and studies the legal aspects of fire prevention and related problems. Lecture 3 hours per week.

FIR 117—Industrial Fire Protection (3 CR.) Prerequisite: FIR 100 or divisional permission. Studies industrial fire protection that fits needs of business, industry, education, and health care facilities. Deals with organizing for fire safety, hazard control and pre-fire planning, as well as fire detection, alarm, and suppression systems. Lecture 3 hours per week.

FIR 125—Fire Service Administration (3 CR.) Studies fire service organization and management, administrative procedures and methods, budgeting and reporting, control of resources, and the maintenance of records. Discusses managerial attitudes and decisions, general organizational planning, and career development. Lecture 3 hours per week.

FIR 205—Fire Hydraulics and Distribution Systems (4 CR.) Prerequisite MTH 120 or divisional permission. Teaches mathematics, laws, and formulas as applied to fire service hydraulics, including the development of mental ability to solve fire flow requirements and water supply needs. Emphasizes the principles, techniques, and application of water distribution systems used for fire suppression. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

FIR 215—Fire Suppression and Detection Systems (3 CR.) Introduces fire suppression and detection systems. Includes design of smoke, heat, and flame detectors, as well as the design and operation of basic control and annunciator panels and multiplex command and control systems. Lecture 3 hours per week.

FIR 220—Building Construction (3 CR.) Teaches fundamentals of building construction, design, and materials as applied to fire resistance and special fire protection features. Gives attention to hazards, venting, heating, air conditioning, and electrical systems including exits, special structures, demolition, and evaluation of structural fire damage. Gives special consideration to high density areas with high fire hazard potential. Exposes students to basic blueprint reading. Lecture 3 hours per week.

FIR 221—Building Construction and Codes (4 CR.) Considers effect of fire on structures and inherent dangers of failure due to fire attack as well as ways various types and methods of building construction can influence the tactics and strategy of fire-fighting. Discusses the importance of corrective building and fire prevention codes and control of hazards within current legal framework. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

FIR 230—Investigation Procedures (3 CR.) Prerequisite FIR 105. Introduces the development and philosophy of fire investigation and detection, including inspection techniques, gathering of evidence and development of a criminal procedure to conform to judicial requirements. Lecture 3 hours per week.

French (FRE)

FRE 101-102—Beginning French I-II (4 CR.) (4 CR.) Introduces understanding, speaking, reading, and writing skills and emphasizes basic French sentence structure. Lecture 4 hours per week.

FRE 201-202—Intermediate French I-II (4 CR.) (4 CR.) Prerequisite French 102 or equivalent. Continues to develop understanding, speaking, reading, and writing skills. French is used in the classroom. Lecture 4 hours per week.

Geography (GEO)

GEO 200—Introduction to Physical Geography (3 CR.) Studies major elements of the natural environment including earth-sun relationship, land forms, weather and climate, natural vegetation, and soils. Introduces the student to types and uses of maps. Lecture 3 hours per week.

GEO 210—People and the Land: An Introduction to Cultural Geography (3 CR.) Focuses on the relationship between culture and geography. Presents a survey of modern demographics, landscape modification, material and non-material culture, language, race and ethnicity, religion, politics, and economic activities. Introduces the student to types and uses of maps. Lecture 3 hours per week.

Geology (GOL)

GOL 105—Physical Geology (4 CR.) Introduces the composition and structure of the earth and modifying agents and processes. Investigates the formation of minerals and rocks, weathering, erosion, earthquakes, and crustal deformation. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

GOL 106—Historical Geology (4 CR.) Traces the evolution of the earth and life through time. Presents scientific theories of the origin of the earth and life and interprets rock and fossil record. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

German (GER)

GER 101-102—Beginning German I-II (4 CR.) (4 CR.) Introduces understanding, speaking, reading, and writing skills and emphasizes basic German sentence structures. Lecture 4 hours per week.

GER 201-202—Intermediate German I-II (4 CR.) (4 CR.) Prerequisite GER 102. Continues to develop understanding, speaking, reading, and writing skills. German is used in the classroom. Lecture 4 hours per week.

Health (HLT)

HLT 100—First Aid and Cardiopulmonary Resuscitation (3 CR.) Focuses on the principles and techniques of safety and first aid. Lecture 3 hours per week.

HLT 105—Cardiopulmonary Resuscitation (1 CR.) Provides training in coordinated mouth-to-mouth artificial ventilation and chest compression, choking, life-threatening emergencies, and sudden illness. Lecture 1 hour per week.

HLT 106—First Aid and Safety (2 CR.) Focuses on the principles and techniques of safety and first aid. Lecture 2 hours per week.

HLT 110—Concepts of Personal and Community Health (2 CR.) Studies the concepts related to the maintenance of health, safety, and the prevention of illness at the personal and community level. Lecture 2 hours per week.

HLT 122—Introduction to Alcohol Abuse and Control (1 CR.) Explores the physiological, psychological, sociological effects of alcohol. Studies why people drink, disease concepts, alcohol tolerance curves, and alcohol's effect on the operation of a motor vehicle. Lecture 1 hour per week.

HLT 135—Child Health and Nutrition (3 CR.) Focuses on the physical needs of the preschool child and the methods by which these are met. Emphasizes health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety as related to health, growth, and development. Lecture 3 hours per week.

HLT 138—Principles of Nutrition (2 CR.) Studies nutrient components of food, including carbohydrates, fats, proteins, vitamins, minerals and water. Provides a behavioral approach to nutrient guidelines for the development and maintenance of optimum wellness. Lecture 2 hours per week.

HLT 143-144—Medical Terminology I-II (3 CR.) (3 CR.) Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, word stems, and technical terms with emphasis on proper spelling, pronunciation, and usage. Emphasizes more complex skills and techniques in understanding medical terminology. Lecture 3 hours per week.

HLT 230—Principles of Nutrition and Human Development (3 CR.) Teaches the relationship between nutrition and human development. Emphasizes nutrients, balanced diet, weight control, and the nutritional needs of the individual. Lecture 3 hours per week.

HLT 261-262—Basic Pharmacy I-II (3 CR. (3 CR.) Explores the basics of general pharmacy, reading prescriptions, symbols, packages, pharmacy calculations. Teaches measuring compounds of drugs, dosage forms, drug laws, and drug classifications. Lecture 3 hours per week.

Heavy Equipment Technology (HVE)

HVE 110—Introduction to Hydraulics and Pneumatics (3 CR.) Introduces hydraulic and pneumatic systems found in construction equipment, road vehicles, and farm equipment. Teaches the basic theory, construction, adjustment, maintenance, and repair of hydraulic and pneumatic power systems. Requires preparation and submittal of unit reports. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

History (HIS)

HIS 101-102—History of Western Civilization I-II (3 CR.) (3 CR.) Examines the development of western civilization from ancient times to the present. The first semester ends with the seventeenth century; the second semester continues through modern times. Lecture 3 hours per week.

HIS 121-122—United States History I-II (3 CR.) (3 CR.) Surveys United States history from its beginning to the present. Lecture 3 hours per week.

HIS 125—History of the American Indian (3 CR.) Examines the history and culture of the native peoples of the Americas. Lecture 3 hours per week.

HIS 126—Women in World History (3 CR.) Studies the role of women and attitudes toward women from ancient times to the present. Lecture 3 hours per week.

HIS 127—Women in American History (3 CR.) Studies the role of women and attitudes toward women in American society from colonial times to the present. Lecture 3 hours per week.

HIS 135—History of the Contemporary World (3 CR.) Analyzes world developments since World War II. Lecture 3 hours per week.

HIS 155—Life in Colonial Virginia (3 CR.) Studies life in Virginia before the American Revolution, including politics, economics, customs, culture, and the slave plantation system. Lecture 3 hours per week.

HIS 156—Lower Shenandoah Valley History (3 CR.) Studies the history and culture of the Lower Shenandoah Valley from the wilderness era to the present. Lecture 3 hours per week.

HIS 201-202—History of American Civilization I-II (3 CR.) (3 CR.) Surveys the social, cultural, and intellectual development of American society. Lecture 3 hours per week.

HIS 211-212—History of England I-II (3 CR.) (3 CR.) Surveys the history of the British Isles from pre-Celtic times to the present. Lecture 3 hours per week.

HIS 221-222—History of Modern Europe I-II (3 CR.) (3 CR.) Examines political, social, cultural, and economic developments from the Renaissance to the present. Lecture 3 hours per week.

HIS 263-264—History of the South I-II (3 CR.) (3 CR.) Studies the political, religious, economic, and social factors influencing the development of the American south from colonial times to the present. Lecture 3 hours per week.

HIS 267—The Second World War (3 CR.) Examines causes and consequences of the Second World War. Includes the rise of totalitarianism, American neutrality, military developments, the home fronts, diplomacy, and the decision to use the atomic bomb. Lecture 3 hours per week.

HIS 269—Civil War and Reconstruction (3 CR.) Studies factors that led to the division between the States. Examines the war, the home fronts, and the era of Reconstruction. Lecture 3 hours per week.

HIS 276—United States History Since World War II (3 CR.) Investigates United States history from 1946 to the present, studying both domestic developments and American involvement in international affairs. Lecture 3 hours per week.

HIS 278—United States Economic History (3 CR.) Analyzes economic developments from the colonial period to the present. Includes the emergence of the market system, the transition from small scale enterprises to corporate capitalism, and the emergence of the contemporary economy. Lecture 3 hours per week.

HIS 281-282—History of Virginia I-II (3 CR.) (3 CR.) Examines the cultural, political, and economic history of the Commonwealth from its beginning to the present. Lecture 3 hours per week.

Horticulture (HRT)

HRT 100—Introduction to Horticulture (3 CR.) Introduces commercial horticulture industry with emphasis on career opportunities. Examines equipment, facilities, and physical arrangements of production,

wholesale and retail establishments. Surveys individual fields within horticulture. Introduces growing, facility maintenance, transplanting and planting. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 105—Gardening with Herbaceous Plants (2 CR.) Introduces basic home gardening techniques for perennials, annuals, bulbs, and home propagation. Lecture 2 hours per week.

HRT 111-112—Landscape Horticulture I-II (3 CR.) (3 CR.) Teaches horticulture and landscaping for home planning and planting. Covers plant taxonomy, plant selection, soil testing, fertilizers, and pest control. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 115—Plant Propagation (3 CR.) Teaches principles and practices of sexual and asexual methods. Examines commercial and home practices. Provides experience in techniques using seed-spores, cuttings, grafting, budding, layering, and division. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 117—Tools and Equipment (2 CR.) Introduces tools and equipment used in horticulture. Emphasizes power-operated equipment including spreaders, sprayers, saws, and tractors. Stresses safety, maintenance, minor repair and appropriate tool selection. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

HRT 121—Greenhouse Crop Production I (3 CR.) Examines commercial practices related to production of floricultural crops. Considers production requirements, environmental control and management, and cultural techniques affecting production of seasonal management, and cultural techniques affecting production of seasonal crops. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 127—Horticultural Botany (3 CR.) Studies taxonomy, anatomy, morphology, physiology, and genetics of plants. Stresses their importance in plant identification, propagation, and culture. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 201-202—Landscape Plant Materials I-II (3 CR.) (3 CR.) Studies in detail landscape use of various plant materials. Considers ornamental value, growth habit, identification, and limitations. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 205—Soils (3 CR.) Teaches theoretical and practical aspects of soils and other growing media. Examines media components, chemical and physical properties, and soil organisms. Discusses management and conservation. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 207—Plant Pest Management (3 CR.) Teaches principles of plant pest management. Covers morphology and life cycles of insects and other small animal pests and plant pathogens. Lab stresses diagnosis, chemical and non-chemical control of specific pests, and pesticide safety. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 225—Nursery and Garden Center Management (3 CR.) Discusses aspects of nursery management, including culture, plant handling, facilities layout, and business management. Discusses aspects of garden center management, including planning and layout, purchasing, product selection, marketing, merchandising, and display. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 226—Greenhouse Management (3 CR.) Discusses the theoretical and applied practices of managing a greenhouse facility. Emphasizes greenhouse construction and design, environmental control, energy conservation, and related topics. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 235—Landscape Drawing (3 CR.) Prerequisite: HRT 201 or HRT 202. Teaches students the use of drafting equipment. Emphasizes drawing techniques and use of media. Includes hard line and free-style landscape drawing. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

HRT 236—Interior Landscaping (2 CR.) Examines principles and practices of interior landscaping in residential and commercial buildings. Covers design, selection, planting, and maintenance of plant materials suitable for indoor use. Includes assessment of client needs, preparation of contracts and specifications, and construction materials. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

HRT 247—Indoor Plants (2 CR.) Considers problems unique to the growth of indoor plants and their use in interior landscaping. Covers identification, uses, culture, and propagation of specific indoor plants. Teaches scientific and common names of plants. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

HRT 260—Introduction to Floral Design (3 CR.) Serves as a practical introduction to floral designs. Teaches basic methods of design and floral arrangement. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 265—Professional Floral Design and Shop Management (3 CR.) Prerequisite HRT 260. Studies style and composition of floral arrangements. Considers location, management and operation of a flower shop. Covers arrangements of flowers for home, church, hotels, and public buildings. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

HRT 267—Silk and Dried Flower Arranging (2 CR.) Concentrates on conventional and contemporary approaches to floral design. Teaches use of silk and dried flowers for holidays and special occasions. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

HRT 269—Professional Turf Care (3 CR.) Discusses careers in the turf industry. Stresses turf-grass identification, selection, culture, propagation, and pest control from a commercial standpoint. Surveys turf care operations and use of common equipment. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

HRT 275—Landscape Construction and Maintenance (3 CR.) Examines practical applications of construction techniques used commercially. Surveys landscape construction materials used. May include construction, planting, and maintenance of a landscaping project. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

Human Services (HMS)

HMS 121—Basic Counselling Skills I (3 CR.) Develops skills needed to function in a helping relationship. Emphasizes skills in attending, listening and responding. Clarifies personal skill strengths, deficits and goals for skill improvement. Lecture 3 hours per week.

HMS 141—Group Dynamics I (3 CR.) Examines the stages of group development, group dynamics, the role of the leader in a group, and recognition of the various

types of group processes. Discusses models of group dynamics that occur as a result of group membership dynamics. Lecture 3 hours per week.

HMS 227—The Helper as a Change Agent (3 CR.) Teaches the following skills for implementing alternative models of change and influence: action research, problem-solving, consultation, workshop development, and outreach and advocacy for diverse client populations. Lecture 3 hours per week.

Humanities (HUM)

HUM 201—Survey of Western Culture I (3 CR.) Studies thought, values, and arts of Western culture, integrating major developments in art, architecture, literature, music, and philosophy. Covers the following periods: Ancient and Classical, Early Christian and Byzantine, Medieval, and Early Renaissance. Lecture 3 hours per week.

HUM 202—Survey of Western Culture II (3 CR.) Studies thought, values, and arts of Western culture, integrating major developments in art, architecture, literature, music, and philosophy. Covers the following periods: Renaissance, Baroque, Enlightenment, Romantic, and Modern. Lecture 3 hours per week.

Interior Design (IDS)

IDS 100—Theory and Techniques of Interior Design (3 CR.) Introduces drafting and presentation, color theory, and coordination, space planning and arrangement of furnishings. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

IDS 105—Architectural Drafting for Interior Design (3 CR.) Introduces tools and equipment, lettering, methods of construction, designing and delineation of architecture. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

IDS 109—Styles of Furniture and Interiors (3 CR.) Teaches history of furnishings and interiors from the ancient world to the present. Lecture 3 hours.

Legal Administration (LGL)

LGL 110—Introduction to Law and the Legal Assistant (3 CR.) Introduces various areas of law in which a legal assistant will be working. Includes intense study of court system (Virginia and federal) as well as a brief overview of criminal law, torts, domestic relations, evidence, ethics, the role of the legal assistant and other areas of interest. Lecture 3 hours per week.

LGL 115—Real Estate Law (3 CR.) Studies law of real property and gives in-depth survey of more common types of real estate transactions and conveyances such as deeds, contracts, leases, and deeds of trust. Focuses on drafting problems involving these various instruments. Includes research projects and studies the system of recording and search of public documents. Lecture 3 hours per week.

LGL 116—Domestic Relations and Consumer Law (3 CR.) Studies elements of a valid marriage, grounds for divorce and annulment, separation, defenses, custody, support, adoptions, and applicable tax consequences. Focuses on separation and pre-nuptial agreements, pleadings, and rules of procedure. May include specific federal and Virginia consumer laws. Lecture 3 hours per week.

LGL 125—Legal Research (3 CR.) Provides an understanding of various components of a law library, and emphasizes research skills through the use of digests, encyclopedias, reporter systems, codes, Shepards, ALR, and other research tools. Lecture 3 hours per week.

LGL 126—Legal Writing (3 CR.) Studies proper preparation of various legal documents, including case and appeal briefs, legal memoranda, letters, and pleadings. Involves practical applications. Requires competence in English grammar. Lecture 3 hours per week.

LGL 210—State and Federal Procedure (3 CR.) Examines in depth the rules of procedure in Virginia and federal courts, including the Federal Rules of Civil Procedure and the Rules of Practice and Procedure in General District and Circuit Court of Virginia. Lecture 3 hours per week.

LGL 216—Trial Preparation and Discovery Practice (3 CR.) Studies the preparation of a trial notebook, pretrial orders, use of interrogatories, depositions, and other discovery tools used in assembling evidence in preparation for trial or an administrative hearing. Lecture 3 hours per week.

LGL 225—Estate Planning and Probate (3 CR.) Introduces various devices used to plan an estate, including wills, trust, joint ownership, and insurance. Considers various plans in light of family situations and estate objectives. Focuses on practices involving administration of an estate including taxes and preparation of forms. Lecture 3 hours per week.

LGL 226—Real Estate Abstracting (3 CR.) Reviews aspects of abstracting title to real estate, recordation of land transactions, liens, grantor-grantee indices, warranties, covenants, restrictions, dower and courtesy rights and easements. Lecture 3 hours per week.

LGL 227—Administration of Decedent's Estates (3 CR.) Teaches students how to administer an estate efficiently. Includes instruction on substantive areas of law and preparation of forms and provides samples for the efficient administration of decedent's estates. Lecture 3 hours per week.

LGL 230—Legal Transactions (3 CR.) Introduces commercial principles and practices and Uniform Commercial Code. Emphasizes contracts, warrants, title, consideration, performance, parties, subject matter and remedies for breach, torts, sales, negotiable instruments, consumer protection, insurance, wills and inheritance, bankruptcy, and statute of limitations. Lecture 3 hours per week.

LGL 236—Legal Corporate Law (3 CR.) Studies 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.

LGL 237—Law of Income Taxation (4 CR.) Studies the law of income taxation—state, federal and local—including preparation of income tax returns and related materials. Surveys various administration and judicial tribunal and their jurisdiction involved in the determination of income tax controversies. Lecture 4 hours per week.

Machine Technology (MAC)

MAC 131-132—Machine Lab I-II (2 CR.) (2 CR.) Teaches fundamental machine shop operations, bench work, layout, measuring tools, and safety. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

Marketing (MKT)

MKT 100—Principles of Marketing (3 CR.) Presents principles, methods, and problems involved in the distribution and marketing of goods and services to industrial and ultimate consumers. Introduces various marketing middlemen: wholesaler, retailer, broker, agent including cooperative and trade associations, shippers, stores and facilitators. Discusses present-day problems and associations, shippers, stores, and facilitators. Discusses present-day problems and policies connected with distribution and sale of products, pricing, promotion, and buyer motivation. Examines variations of the marketing mix and market research, plus legal, social and ethical considerations in marketing. Lecture 3 hours per week.

MKT 110—Principles of Selling (3 CR.) Presents fundamental aspects of personal selling, sales, ethics, and selling methods. Emphasizes professional sales techniques. Examines organization necessary for a well coordinated sales effort, including the training of sales personnel for maximum efficiency in selling and organization of the sales division within the business enterprise. Introduces sales management in planning, organizing, directing, and controlling the total sales effort. Lecture 3 hours per week.

MKT 115—Retail Organization and Management (3 CR.) Examines the organization of the retail establishment to accomplish its goals in an effective and efficient manner. Includes study of site location, internal layout, store operations, and security. Examines the retailing mix, the buying or procurement process, pricing, and selling. Studies retail advertising, promotion and publicity as a coordinated effort to increase store traffic. Lecture 3 hours per week.

MKT 116—Retail Mathematics (3 CR.) Prerequisite BUS 125. Introduces students to the specialized mathematics of retailing in making business decisions, writing purchase orders, terms of purchase, calculating mark-up, pricing merchandise, planning and control inventory valuation, and preparing monthly operating statements. Lecture 3 hours per week.

MKT 120—Fundamentals of Fashion (3 CR.) Develops an understanding of the principles and procedures involved in the production, distribution, and consumption of fashion merchandise. Traces the history and development of fashion and how these changes affect the fashion-merchandising world. Focuses on changing consumer characteristics that influence demand for fashion products and the effects that fashion-marketing activities have on the economy. Lecture 3 hours per week.

MKT 130—Principles of Insurance (3 CR.) Provides an introduction to insurance principles and practices. Includes an examination of risks and applications to the principal fields of insurance including life, accident and health, fire, liability, surety, and property. Lecture 3 hours per week.

MKT 132—Agents Property and Casualty Training (3 CR.) Examines categories of insurance sold by resident agents (fire, automobile, casualty and fidelity and surety bonds). Satisfies the Commonwealth of Virginia's educational requirements for individuals to sit for the insurance agent's qualification examination. Lecture 3 hours per week.

MKT 133—Principles of Liability Insurance and Claim Adjusting (2 CR.) Teaches principles of legal liability and liability insurance, principles of liability adjusting, claims-handling problems and procedures. Studies human behavior in adjusting, types of insurers, rate making, regulation, and other aspects of the liability insurance field. Lecture 2 hours per week.

MKT 134—Principles of Casualty Insurance and Surety Bonding (2 CR.) Examines automobile liability insurance and policy terms, workmen's compensation and employer's liability, comprehensive liability, and professional and personal liability. Reviews fidelity and surety bonds, theft coverages, miscellaneous casualty coverages, multiple-line trends and coverages plus health insurance. Lecture 2 hours per week.

MKT 135—Principles of Property Insurance and Claim Adjusting (2 CR.) Studies risk and insurance, risk management, insurance transactionm, and contract. Reviews limitation in coverage and recovery, procedure, investigation, and reports in adjustment of property losses, and estimating building losses. Lecture 2 hours per week.

MKT 136—Principles of Fire, Marine, and Allied Lines Insurance (2 CR.) Examines fire insurance policy provisions, indirect losses, and rates; loss marine insurance; inland marine insurance and specimen policies; loss settlement; and multiple-coverages. Lecture 2 hours per week.

MKT 137—Agents Life and Health Training (3 CR.) Examines two categories of insurance sold by resident agents: health and life. Satisfies the Commonwealth of Virginia's educational requirements for individuals to sit for the insurance agent's qualification examination. Lecture 3 hours per week.

MKT 210—Sales Management (3 CR.) Presents an in-depth examination of managing a sales force. Introduces methods of training, compensating, motivating, and evaluation the sales force. Explores forecasting techniques and quotas. Lecture 3 hours per week.

MKT 220—Principles of Advertising (3 CR.) Emphasizes the role of advertising in the marketing of goods and services. Discusses the different uses of advertising; types of media; how advertising is created; agency functions; and legal, social, and economic aspects of the industry. Introduces advertising display, copy and art work preparation, printing, and selection of media. Lecture 3 hours per week.

MKT 227—Merchandise Buying and Control (3 CR.) Studies the merchandising cycle. Explores techniques used in the development of buying resources, merchandising plans, model stock, unit control, and inventory systems. Highlights merchandise selection, policy pricing strategies, and inventory control methods. Lecture 3 hours per week.

MKT 229—Marketing Research (3 CR.) Prerequisite MKT 100. Introduces the marketing research process to include methodology, data collection, sampling, and analysis. Teaches students to plan basic research studies and to apply findings to marketing decisions. Lecture 3 hours per week.

MKT 238—Fashion Merchandising (3 CR.) Develops an understanding of the major considerations involved in the buying and merchandising of fashion products. Emphasizes the dynamics of fashion and consumer buying patterns and sources of buying information. Discusses fashion buying and inventory control in the merchandising cycle plus techniques used to develop fashion buying plans, model stocks, unit control, and inventory systems. Stresses selection policy and pricing for profit. Lecture 3 hours per week.

MKT 266—Fundamentals of Life and Health Insurance (2 CR.) Provides the student with an expanded knowledge of the principles underlying life and health insurance. Includes basics of insurance, types of contracts, premium and reserve calculations, legal principles, programming, and business uses. Lecture 2 hours per week.

MKT 270—Marketing Management (3 CR.) Prerequisite MKT 100. Expands knowledge of marketing through case studies. Focuses on how marketing strategies are planned and utilized in the market place to accomplish the goals of the organization. Lecture 3 hours per week.

MKT 271—Consumer Behavior (3 CR.) Examines the various influences affecting consumer buying behavior before, during, and after product purchase, including societal, cultural, environmental, group, and economic determinants. Lecture 3 hours per week.

MKT 275—International Marketing (3 CR.) Examines the role of the multinational firm, as well as the environments in which they operate. Covers such factors as exchange rates, government foreign trade policy, and social-cultural factors. Compares international marketing planning with domestic market planning. Lecture 3 hours per week.

Mathematics (MTH)

MTH 01—Developmental Mathematics (3 CR.) Covers selected topics from Algebra I. Designed as an alternative course of study for MTH 03 students who need to complete their study of basic algebra. Enrollment each semester restricted to students who earned an R grade in MTH 03 the preceding semester. Lecture 3 hours per week.

MTH 02—Basic Arithmetic (3 CR.) Prerequisite: an appropriate score on the Arithmetic Placement Test. Covers arithmetical principles and computations. Develops the mathematical proficiency necessary for selected curriculum entrance. Lecture 3 hours per week.

MTH 03—Basic Algebra I (4 CR.) Prerequisites: satisfactory score on the Arithmetic Placement Test or MTH 02 or equivalent. Develops mathematical proficiency necessary for selected curriculum entrance. Lecture 4 hours per week.

MTH 04—Basic Algebra II (4 CR.) Prerequisite: Algebra I or MTH 03. Develops the mathematical proficiency in intermediate algebra necessary for selected curriculum entrance. Lecture 4 hours per week.

MTH 05—Algebra Revisited (3 CR.) Covers selected topics from Algebra II. Designed as an alternative course of study for MTH 04 students who need to complete their study of intermediate algebra. Enrollment each semester restricted to students who earned a grade of B in MTH 04 the preceding semester. Lecture 3 hours per week.

MTH 06—Basic Geometry (3 CR.) Prerequisite: Algebra I or MTH 03. Develops the mathematical proficiency in geometry necessary for selected curriculum entrance. Lecture 3 hours per week.

MTH 07—Basic Trigonometry (3 CR.) Prerequisites: Algebra II or MTH 04. Develops the mathematical proficiency in trigonometry necessary for selected curriculum entrance. Lecture 3 hours per week.

MTH 103—Basic Technical Mathematics I (5 CR.) Prerequisite: Algebra I or MTH 03. Presents a review of arithmetic, and teaches elements of algebra, geometry, and trigonometry. Directs applications to specialty areas. Lecture 5 hours per week.

MTH 111—Technical Mathematics (3 CR.) Prerequisites: MTH 02 or an appropriate score on the Placement Test. Teaches algebra, geometry, and trigonometry. Directs applications to specialty areas. Lecture 3 hours per week.

MTH 113-114—Engineering Technical Mathematics I-II (5 CR.) (5 CR.) Prerequisites: (Algebra I, Geometry, and Algebra II) or (MTH 03 and MTH 103). Presents algebra, geometry, trigonometry, and an introduction to calculus. Includes solution of linear and quadratic equations, trigonometric curve sketching, logarithms, ratio, proportion, variation, vectors, and the binomial theorem. Lecture 5 hours per week.

MTH 120—Introduction to Mathematics (3 CR.) Prerequisite: Algebra I. Introduces number systems, logic, basic algebra, systems of equations, and descriptive statistics. Lecture 3 hours per week.

MTH 146—Introduction to Elementary Statistics (3 CR.) Prerequisite: Algebra I. Introduces 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.

MTH 150—Topics in Geometry (3 CR.) Prerequisite: Algebra I. Studies the fundamentals of plane and solid geometry and introduces non-Euclidean geometries. Topics chosen to enhance the mathematics background of teachers. Lecture 3 hours per week.

MTH 151-152—Mathematics for the Liberal Arts I-II (3 CR.) (3 CR.) Prerequisites: Algebra I, Geometry, and Algebra II. Covers the basic concepts and methods of mathematics, computer science, and statistics. Presents topics including number theory, logic, functions, elementary computer concepts, problem-solving, probability, and statistics. Lecture 3 hours per week.

MTH 166—College Algebra and Trigonometry (4 CR.) Prerequisites: Algebra I, Geometry and Algebra II. Prepares students for Calculus with Analytic Geometry. Includes algebra, analytic geometry, and a study of algebraic and transcendental functions. Lecture 4 hours per week.

MTH 171—Precalculus Mathematics (3 CR.) Prerequisites: Algebra I, Geometry, and Algebra II. Presents the concepts and methods necessary for the study of calculus including algebra, analytic geometry, and the study of algebraic, exponential, logarithmic, and trigonometric functions. Lecture 3 hours per week.

MTH 173-174—Calculus with Analytic Geometry I-II (5 CR.) (5 CR.) Prerequisites: (four units of high school mathematics, including Algebra I, Algebra II, Geometry, and one-half unit of Trigonometry) or MTH 166 or (MTH 07 and MTH 171). Presents analytic geometry and

calculus including functions, limits, derivatives, differentials, indefinite integrals, definite integrals, and applications. Lecture 5 hours per week.

MTH 241-242—Statistics I-II (3 CR.) (3 CR.) Prerequisite: MTH 171 or equivalent. Covers descriptive statistics, elementary probability, distributions, sampling distributions, estimation, hypothesis testing, regression, correlation, analysis of variance, non-parametric methods, and the study of quantitative methods such as linear programming, project scheduling, and decision analysis. Lecture 3 hours per week.

MTH 271-272—Applied Calculus I-II (3 CR.) (3 CR.) Prerequisites: (four units of high school mathematics, including Algebra I, Algebra II, Geometry, and one-half unit of advanced algebra) or MTH 166 or MTH 171. Introduces limits, continuity, differentiation and integration of algebraic and transcendental functions, multivariable calculus, and differential equations. Emphasizes applications. Lecture 3 hours per week.

MTH 275—Vector Calculus and Linear Algebra (4 CR.) Prerequisite: MTH 174 or equivalent. Presents vector spaces, linear algebra, multiple integrals, and infinite series. Lecture 4 hours per week.

MTH 286—Discrete Mathematics (4 CR.) Prerequisite: MTH 174 or equivalent. Presents topics in discrete mathematical structures which are basic tools used in computer science. Covers sets, Boolean algebra, counting methods, generating functions and recurrence relations, graph theory, trees, and an introduction to finite state automata. Lecture 4 hours per week.

MTH 291—Ordinary Differential Equations (3 CR.) Prerequisite MTH 174 or equivalent. Introduces first order differential equations, linear differential equations, systems of differential equations, and applications. Lecture 3 hours per week.

Mechanical Engineering Technology (MEC)

MEC 118—Automated Manufacturing Technology (2 CR.) Prerequisite: MEC 120 or equivalent. Studies numerical control systems. Includes application of numerical control to standard machine tools, numerical control systems, NC coordinate system, APT systems, two-dimensional machine process, three-dimensional machine process, flexible manufacturing role of robotics in automated manufacturing. Lecture 1 hours. Laboratory 3 hours. Total 4 hours per week.

MEC 120—Principles of Machine Technology (3 CR.) Studies fundamental machine operations and practices, including layout, measuring devices, hand tools, drilling, reaming, turning between centers, cutting tapers and threads, and milling; fabrication of mechanical parts on drill press, lathe, and mill. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

MEC 131—Mechanics I — Statics for Engineering Technology (3 CR.) Prerequisite: MTH 113 or equivalent. Teaches Newton's laws, resultants and equilibrium of force systems, trusses and frames, determination of centroids, and distributed loads and moments of inertia. Introduces dry friction and force systems in space. Lecture 3 hours per week.

MEC 132—Mechanics II — Strength of Materials for Engineering Technology (3 CR.) Prerequisite: MEC 131. Teaches the concepts of stress and strain. Provides an analysis of stresses and deformations in loaded members, connectors, shafts, beams, columns, and combined stress. Lecture 3 hours per week.

MEC 162—Fluid Mechanics — Hydraulics/Pneumatics (2 CR.) Introduces hydraulic and pneumatic systems found in construction equipment, road vehicles, and farm equipment. Includes the basic theory, construction, maintenance, and repair of hydraulic and pneumatic power systems. Lecture 2 hours per week.

MEC 213-214—Machine Design I-II (4 CR.) (4 CR.) Prerequisite: MTH 113. Corequisite: MEC 132. Focuses on the analytical design of bearings, clutches, couplings, brake springs, gearing systems and power shafting. Emphasizes methods of constructing machine parts and specification of materials and manufacturing processes. Lecture 4 hours per week.

MEC 256—Thermodynamics (3 CR.) Prerequisite: MTH 113. Introduces basic laws of thermodynamics and energy conversions. Analyzes energy, cycles, temperature, entropy, and enthalpy. Covers thermodynamic systems and processes. Lecture 3 hours per week.

MEC 265—Fluid Mechanics (3 CR.) Prerequisite: MEC 131, MTH 113. Studies properties of fluids and fluid flow, Bernouli's theorem, measuring devices, viscosity, and dimensional analysis. Emphasizes pumps, piping, and fluid motors. Lecture 3 hours per week.

Mental Health (MEN)

MEN 100—Introduction to Mental Health (3 CR.) Surveys history of mental health from ancient to contemporary times, with special emphasis on impact of the psychoanalytic, humanistic, and behavioral movements in the treatment of mental illness. Includes examination of structure and functions of human service delivery systems, knowledge and skills of mental health workers, and current ethical and legal issues. Lecture 3 hours per week.

MEN 101-102—Mental Health Skill Training I-II (3 CR.) (3 CR.) Develops skills necessary to function as a mental health worker, with emphasis on guided practice in counseling skills as well as improved self-awareness. Includes training in problem solving, goal setting, and implementation of appropriate strategies and evaluation techniques relating to interaction involving a variety of client needs. Lecture 3 hours per week.

MEN 110—Introduction to Abnormal Psychology (3 CR.) Studies symptoms, causes, and treatment of mental deficiency, menrosis, psychosis, and character disorders, with specific relationship to work of the mental health technologists. Lecture 3 hours per week.

MEN 115—Activities Therapy (3 CR.) Provides training in the use of recreation, arts and crafts, and music as therapeutic tools for treatment of emotionally disturbed, physically handicapped, and developmentally disabled clients. Requires a project in an applied setting . Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week.

MEN 121-122—Mental Retardation I-II (3 CR.) (3 CR.) Explores current problems and social, cultural, and legal issues involved in therapeutic interventions for understanding and programs relating to the mentally retarded. Lecture 3 hours per week.

MEN 135—Human Services and the Law (3 CR.) Examines current issues in mental health and impact

of federal and state laws on delivery of services. Considers issues of civil commitment of the mentally ill and confidentiality and rights of clients. Lecture 3 hours per week.

MEN 221-222—Group Process I-II (3 CR.) (3 CR.) Prerequisite MEN 101-102. Studies the stages of group development, role of the group leader, and contemporary models of group counseling utilized in mental health counseling. Includes experiential training in group leadership. Lecture 3 hours per week.

MEN 225—Counselling Therapy (3 CR.) Studies various models of counseling theories and appropriate application of counseling techniques in the helping profession. Lecture 3 hours per week.

MEN 245—Problems In Aging (3 CR.) Prerequisite MEN 101 or departmental approval. Examines the problems associated with aging including personality changes and reactions to internal and external stress. Covers specific intervention strategies that seek to rehabilitate and facilitate the adjustment of the aging client. Places emphasis on techniques for psychological problems associated with such factors as organic and general physical deterioration, metabolic disturbance, and social isolation. Lecture 3 hours per week.

MEN 246—Problems In Adolescence (3 CR.) Prerequisite MEN 101 or departmental approval. Examines the problems associated with adolescence with an in-depth look at personality, environmental, and developmental factors. Covers specific intervention strategies with emphasis on theory, rationale, and techniques appropriate for this age group. Lecture 3 hours per week.

Music (MUS)

MUS 121-122—Music Appreciation I-II (3 CR.) (3 CR.) Increases the variety and depth of the student's interest, knowledge, and involvement in music and related cultural activities. Acquaints the student with traditional and twentieth-century music literature, emphasizing the relationship music has as an art form with man and society. Increases the student's awareness of the composers and performers of all eras through listening and concert experiences. Lecture 3 hours per week.

MUS 163-164—Guitar Theory and Practice I-II (3 CR.) (3 CR.) Studies the fundamentals of sound production, music theory, and harmony as they apply to guitar. Builds proficiency in both the techniques of playing the guitar and in the application of music fundamentals to these techniques. Presents different types of guitars and related instruments. Emphasizes music as entertainment and as a communication skill. Lecture 2 hours per week. Laboratory 3 hours. Total 5 hours per week.

Natural Science (NAS)

NAS 131-132—Astronomy I-II (4 CR.) (4 CR.) Studies the major and minor bodies of the solar system, stars and nebulae of the Milky Way, and extragalactic objects. Examines life and death of stars, origin of the universe, history of astronomy, and instruments and techniques of observation. Lecture 3 hours per week. 3 hours per week. Total 6 hours per week.

NAS 171-172—Human Anatomy and Physiology I-II (4 CR.) (4 CR.) Presents the human organ systems and their functions as they relate to allied health science. Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week.

NAS 180—Introduction to Microbiology (3 CR.) Introduces basic principles of structure and function of microbes as applied to health concerns. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week.

NAS 185—Microbiology (4 CR.) Surveys microorganisms, presenting their characteristics and activities as related to health and disease. Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week.

Nursing (NUR)

NUR 25—Nursing Assistant (3 CR.) Teaches 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. Laboratory 4 hours. Total 6 hours per week.

NUR 26—Nursing Assistant Advanced (3 CR.) Focuses on theory and laboratory experiences in asepsis, sterile techniques, tube feedings, and other skills required by nursing assistants in geriatric and psychiatric facilities. Lecture 2 hours. Laboratory 3 hours Total 5 hours per week.

NUR 27—Geriatric Nurse Aide (4 CR.) Teaches care of older patients with emphasis on the social, emotional, and spiritual needs of geriatric patients; procedures; communication and interpersonal relations; observation, charting and reporting; safety and infection control; anatomy and physiology; personal care, nutrition and patient feeding; death and dying. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

NUR 70—Reentry Into Nursing (6 CR.) Facilitates the return of the inactive nurse to the work force. Teaches current nursing practice and updates skills. Lecture 3 hours. Laboratory 9 hours. Total 12 hours per week.

NUR 111—Nursing I (10 CR.) Corequisite: BIO 141. Introduces nursing principles, concepts, and the nursing process. Develops nursing skills to meet the biopsychosocial needs of individuals. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratory and or cooperating agencies. Lecture 7 hours. Laboratory 3 hours. Clinic 6 hours per week. Total 16 hours per week.

NUR 112—Nursing II (10 CR.) Prerequisites: NUR 111 and BIO 141. Corequisite: NAS 180. Focuses on the nursing care of individuals and/or families experiencing changes along the health illness continuum that are common, well-defined, and have predictable outcomes. Provides supervised learning experiences in college nursing laboratory and or cooperating agencies. Lecture 6 hours. Clinic 12 hours per week. Total 18 hours per week.

NUR 135—Drug Dosage Calculations (2 CR.) Teaches apothecary, metric, household conversion; reading of drug orders and labels. Provides a practical approach to learning to prepare dosages and solutions, including

calculating intravenous flow rates and pediatric drugs. Lecture 2 hours per week.

NUR 211-212—Nursing III-IV (10 CR.) (10 CR.) (10 CR.) (10 CR.) Prerequisites for NUR 211: NUR 112, NAS 180, BIO 141, BIO 142. Corequisite for NUR 211: PSY 201.ePrerequisites for NUR 212: NUR 211 and PSY 201.eCorequisite for NUR 212: PSY 215. Emphasizes the nursing area of individuals/families in various stages of development experiencing problems related to their biopsychosocial needs. Uses all components of the nursing process with increasing degrees of skill. Provides supervised learning experiences in college nursinge laboratory and/or cooperating agencies. Lecture 6 hours. Clinic 12 hours per week. Total 18 hours per week.

NUR 226—Health Assessment (3 CR.) Focuses upon the scientific principles and nursing skills utilized in the administration of intravenous therapy. Explains the effects of intravenous therapy upon individuals across the life span and/or individuals with selected disease processes. Lecture 3 hours per week.

NUR 230—Pharmacology for Nurses (3 CR.) Introduces the general principles of drug action, pharmacology of the major drug classes, and specifice agents within each class and routine mathematical calculations necessary to alter dosages for pediatrics, geriatrics, and certain disease states. Coversebody systems, toxicology of drugs, and administration of medications. Lecture 3 hours per week.

Office Administration (OAD)

OAD 172—Human Relations (1-5 CR.) Examines ways to achieve success on the job through effective human relations. Stresses improving work relationships by recognizing the importance of needs and developing an understanding of peers and supervisors. Total 1-5 hours per week.

OAD 201—Introduction to Microcomputers (1-5 CR.) Examines concepts and terminology related to microcomputers. Includes demonstration of specific uses of microcomputers with extensive opportunities for hands-on experience. Total 1-5 hours per week.

OAD 204—Survey of Computer Software Applications (1-5 CR.) Reviews most common business softwaree applications for microcomputers. Emphasizes comparison of various software for use and applicability. Includes short, hands-on sessions involving use of a varietyeof database, spreadsheet, graphics, and word processing software programs. Total 1-5 hours per week.

OAD 206—Microcomputer Software: Word Processing (1-5 CR.) Provides first-time users with sufficient information to make practical use of word processing microcomputer software. Presents the basics of formatting, revising, and merging. Covers specific business applications. Total 1-5 hours per week.

OAD 207—Microcomputer Software: Spreadsheet/ Graphics (1-5 CR.) Provides first-time users with sufficient information to make practical use of database management microcomputer software. Presents basics of building data bases. Covers specific business applications. Total 1-5 hours per week.

OAD 208—Microcomputer Software: Database Management (1-5 CR.) Provides first-time users with sufficient information to make practical use of database management microcomputer software. Presents basics of building data bases. Covers specific business applications. Total 1-5 hours per week.

OAD 221—IBM Displaywriter: Basic (1-5 CR.) Provides hands-on training on IBM Displaywriter to cover standard formats and system defaults, basic keyboarding commands and functions, document and table creation/ revision, text indentation and column alignment, and printing. Total 1-5 hours per week.

OAD 222—IBM Displaywriter: Advanced (1-5 CR.) Provides hands-on training and includes these advanced applications: creating and revising multi-page documents; performing global replacement and deletions; using headers and footers; initializing, erasing, and duplicating diskettes; using work and archive disks; and using shortcuts and menu bypass features. Total 1-5 hours per week.

Office Systems Technology (OFT)

OFT 100—Office Skills Review (3 CR.) Prerequisite: OFT 111. Provides the opportunity to review office skills such as keyboarding/typewriting, shorthand, machine transcription, and other selected office topics based on individual needs. Lecture 3 hours per week.

OFT 105—Personal Keyboarding/Typewriting (2-3 CR.) Teaches touch keyboarding/typewriting, using correct techniques. Introduces business letters and manuscript/ report formats. Variable hours per week.

OFT 107—Editing/Proofreading Skills (3 CR.) Develops skills essential to creating and editing business documents. Covers spelling, diction, and punctuation, word division, capitalization, and sentence structure. Lecture 3 hours per week.

OFT 110—Keyboarding/Typewriting — Skillbuilding (3-5 CR.) Prerequisite: OFT 111 or OFT 115. Emphasizes speed and accuracy to attain skills for job employment and job promotion. Variable lecture/ laboratory hours per week.

OFT 111—Keyboarding/Typewriting I (3-5 CR.) Introduces the keyboard with emphasis on good techniques, machine mastery, letter formats and styles, tabulations, centering, and reports. Variable lecture/ laboratory hours per week.

OFT 112—Keyboarding/Typewriting II (3-5 CR.) Prerequisite OFT 111. Continues skill building through production typing with emphasis on employment competencies. Variable lecture/laboratory hours per week.

OFT 115—Keyboarding for Information Processing (3-5 CR.) Develops keyboarding proficiency with a variety of keyboards found on electronic text-data entry devices. Includes instruction in general business and office formats. Variable hours per week.

OFT 116—Automated Keyboarding/Typewriting Equipment (1 CR.) Prerequisite divisional approval. Develops proficiency in the operation of automated keyboarding/typewriting equipment. May use self-instructional materials. Laboratory 2 hours per week.

OFT 121—Shorthand I (3-5 CR.) Focuses on shorthand theory, reading and writing skills, development of general business vocabularies, word usage, and general business dictation. Variable hours per week.

OFT 122—Shorthand II (3-5 CR.) Prerequisite: OFT 121. Develops speed in typical business dictation, with

emphasis on transcription accuracy from shorthand notes. Variable hours per week.

OFT 135—Simulation In Office Procedures (3 CR.) Prerequisite: OFT 112. Integrates office skills and procedures in a simulated business setting. Lecture 3 hours per week.

OFT 136—Office Recordkeeping (3 CR.) Introduces types of recordkeeping duties performed in the office, such as financial, tax, payroll, and inventory. Utilizes specialized software where applicable. Lecture 3 hours per week.

OFT 137—Filing and Records Management (3 CR.) Introduces indexing principles, filing procedures, and systems, including electronics and micrographics. Teaches selection of equipment and supplies and solving records management problems. Lecture 3 hours per week.

OFT 138—Educational Office Procedures and Records Management (3 CR.) Prerequisite OFT 112. Teaches procedures and record management systems. May include topics such as special correspondence, reports, proposals, and visual aids. Lecture 3 hours per week.

OFT 205—Business Communications (3 CR.) Teaches techniques of oral and written communications. Emphasizes writing and presenting business-related materials. Lecture 3 hours per week.

OFT 206—Professional Development (3 CR.) Develops professional awareness in handling business and social situations. Emphasizes on goal setting and decision making. Lecture 3 hours per week.

OFT 215—Executive Keyboarding/Typewriting (3-5 CR.) Prerequisite: OFT 112. Develops decision-making skills, and speed and accuracy in production typing on various equipment. Emphasizes employment standards. Variable hours per week.

OFT 216—Word Processing Equipment Operation (3-5 CR.) Prerequisite OFT 111. Teaches use and operation of word/information processing equipment. Incorporates specific advanced applications. Variable hours per week.

OFT 217—Word Processing Procedures (3-5 CR.) Prerequisite OFT 216. Teaches a systems approach to the management of the office, including administrative and correspondence support. May use office automation equipment for hands-on simulations. Variable hours per week.

OFT 221—Advanced Shorthand and Transcription I (3-5 CR.) Prerequisite: OFT 122. Reviews principles of shorthand, develops vocabulary and phrasing techniques, and builds speed of general business dictation and transcription skills. Variable hours per week.

OFT 222—Advanced Shorthand and Transcription II (3-5 CR.) Prerequisite: OFT 221. Continues emphasis on speed building and the development of transcription skills with emphasis on particular phrases and shortcuts. Variable hours per week.

OFT 230—Introduction to Office Automation (3 CR.) Introduces principles, methods, and techniques involved in office automation technology. Emphasizes word processing and microcomputer equipment and software. Studies automated office personnel, procedures, ergonomics, and career opportunities. Lecture 3 hours per week.

OFT 231—Microcomputer Office Application I (3 CR.) Prerequisite OFT 111 or OFT 117. Teaches advanced business applications of microcomputer software packages. Variable lecture/laboratory hours per week.

OFT 232—Microcomputer Office Application II (3-5 CR.) Prerequisite: OFT 231. Teaches advanced business applications of microcomputer software packages. Variable hours per week.

OFT 235—Specialized Software Applications (1-3 CR.) Prerequisite: OFT 111 or OFT 117. Introduces specific business software on the microcomputer. Variable hours per week.

OFT 236—Word Processing Operation and System Operation (3-5 CR.) Prerequisite OFT 216. Focuses on advanced applications and use of word/information processing equipment. Teaches system supervision and operation. Variable hours per week.

OFT 237—Principles of Office Automation Management (3 CR.) Prerequisite: OFT 230. Studies management functions and analyzes supervisor's role in information processing cycle and changing technology of office automation. Lecture 3 hours per week.

OFT 241-242—Machine Transcription I-II (3-5 CR.) (3-5 CR.) Prerequisite: OFT 112. Teaches efficient operation of transcribing equipment, listening and dictating techniques and business formats, grammar. Also, covers punctuation, and business English usage. Emphasizes production rates of mailable copy. Variable hours per week.

OFT 245—Medical Machine Transcription (3-5 CR.) Prerequisite OFT 112. Develops machine transcription skills, integrating operation of transcribing equipment with understanding of medical terminology. Emphasizes dictation techniques and accurate transcription of medical documents in prescribed formats. Variable hours per week.

OFT 246—Legal Machine Transcription (3-5 CR.) Prerequisite OFT 112. Develops machine transcription skill, integrating operation of transcribing equipment with understanding of legal terminology. Emphasizes dictation techniques and accurate transcription of legal documents in prescribed formats. Variable hours per week.

OFT 251-252—Office Systems and Procedures (3 CR.) (3 CR.) Prerequisite OFT 112. Teaches office protocol, solutions to office problems, managerial functions, and other topics associated with office technology. Lecture 3 hours per week.

Philosophy (PHI)

PHI 101-102—Introduction to Philosophy I-II (3 CR.) (3 CR.) Introduces a broad spectrum of philosophical problems and perspectives with an emphasis on the systematic questioning of basic assumptions about meaning, knowledge, reality, and values. Lecture 3 hours per week.

PHI 220—Ethics (3 CR.) Provides a systematic study of representative ethical systems. Lecture 3 hours per week.

PHI 227—Bio-Medical Ethics (3 CR.) Examines the ethical implications of specific biomedical issues in the context of major ethical systems. Lecture 3 hours per week.

PHI 231-232—Thanatology: Dimensions of Death and Dying I-II (3 CR.) (3 CR.) Surveys attempts to

understand the meaning of death and of ways of handling personal and social implications. Examines dying and death from a variety of perspectives, including psychological, sociological, cultural, and religious views. Lecture 3 hours per week.

Photography (PHT)

PHT 100—Introduction to Photography (2 CR.) Introduces principles of photography with outside shooting assignments related to lecture topics. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

PHT 101-102—Photography I-II (3 CR.) (3 CR.) Teaches principles of photography and fundamental camera techniques. Requires outside shooting and lab work. Lecture 1 hour. Laboratory 4 hours. Total 5 hours per week.

PHT 107—Nature Photography (3 CR.) Teaches fundamentals of 35mm color slide photography of natural objects. Emphasizes selection of equipment and film, compositional theory, and the flash photography formula. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

PHT 201-202—Advanced Photography (3 CR.) (3 CR.) Prerequisite PHT 101 or equivalent. Provides weekly critiques of students' work. Centers on specific problems found in critiques. Includes working procedures and critical skills in looking at photographs. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

PHT 226—Commercial Photography (3 CR.) Prerequisite PHT 101. Examines advanced topics relating to commercial photography. Emphasizes advertising, portraiture, and commercial and public relations. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

Physical Education and Recreation (PED)

PED 103-104—Aerobic Fitness I-II (1-2 CR.) (1-2 CR.) Develops cardiovascular fitness though activities designed to elevate and sustain heart rates appropriate to age and physical condition. Variable hours per week.

PED 105-106—Aerobic Dance I-II (1-2 CR.) (1-2 CR.) Focuses on physical fitness through dance exercises. Emphasizes the development of cardiovascular endurance, muscular endurance, and flexibility. Variable hours per week.

PED 107-108—Slimnastics I-II (1-2 CR.) (1-2 CR.) Provides the student with a full body workout through flexibility, strength, and cardiovascular endurance exercises. Includes fitness evaluation, nutrition analysis, and weight control. Variable hours per week.

PED 123-124—Tennis I-II (1-2 CR.) (1-2 CR.) Teaches tennis skills with emphasis on stroke development and strategies for individual and team play. Includes rules, scoring, terminology, and etiquette. Variable hours per week.

PED 135-136—Bowling I-II (1-2 CR.) (1-2 CR.) Teaches basic bowling skills and techniques, scoring, rules, etiquette, and terminology. Variable hours per week.

PED 150—Soccer (1-2 CR.) Emphasizes soccer skills and techniques, strategies, rules, equipment, and physical conditioning. Variable hours per week.

PED 151—Touch/Flag Football (1-2 CR.) Emphasizes touch/flag football skills and techniques, strategies, rules, equipment, and physical conditioning. Variable hours per week.

PED 152—Basketball (1-2 CR.) Introduces basketball skills, techniques, rules, and strategies. Variable hours per week.

PED 154—Volleyball (1-2 CR.) Introduces skills, techniques, strategies, rules, and scoring. Variable hours per week.

PED 156—Softball (1-2 CR.) Emphasizes skills, techniques, strategies, rules. Variable hours per week.

PED 181-182—Downhill Skiing I-II (1-2 CR.) (1-2 CR.) Teaches basic skills of downhill skiing; selection and use of equipment; terminology and safety rules. Includes field experience. Variable hours per week.

Physics (PHY)

PHY 101—Introduction to Physics (4 CR.) Prerequisites: Algebra I, Geometry, and Algebra II. Surveys general principles of physics. Includes topics such as force and motion, energy, heat, sound, light, electricity and magnetism, and modern physics. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

PHY 201-202—General College Physics I-II (4 CR.) (4 CR.) Prerequisites: MTH 113 or MTH 171 or equivalent. A non-calculus introductory college physics sequence. Includes fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity, magnetism, and selected topics in modern physics. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

PHY 222—Engineering Physics (3 CR.) Prerequisite: PHY 241. Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear physics. Lecture 3 hours per week.

PHY 241-242—University Physics I-II (4 CR.) (4 CR.) Prerequisite: MTH 174 or equivalent. An introductory calculus-based physics sequence recommended for engineering, physics, computer science, and mathematics majors. Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear physics. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

Political Science (PLS)

PLS 130—Basics of American Politics (3 CR.) Teaches basics of the operations of Congress, the presidency, and the federal court system. Includes civil liberties, citizenship, elections, political parties, and interest groups. Lecture 3 hours per week.

PLS 135—American National Politics (3 CR.) Teaches political institutions and processes of the national government of the United States, focuses on the Congress, presidency, and the courts, and on their interrelationships. Gives attention to public opinion, suffrage, elections, political parties, interest groups, civil rights, domestic policy, and foreign relations. Lecture 3 hours per week.

PLS 211-212—U.S. Government I-II (3 CR.) (3 CR.) Teaches structure, operation, and process of national, state, and local governments. Includes in-depth study

of the three branches of the government and of public policy. Lecture 3 hours per week.

PLS 241—International Relations I (3 CR.) Teaches geographic, demographic, economic, ideological, and other factors conditioning the policies of countries and discusses conflicts and their adjustment. Lecture 3 hours per week.

PLS 242—International Relations II (3 CR.) Teaches foreign policies of the major powers in the world community with an emphasis on the role of the United States in international politics. Lecture 3 hours per week.

Psychology (PSY)

PSY 106—Experiences in Personal Growth (3 CR.) Teaches individual to understand himself better in relation to his immediate environment, community, and society. Also, stresses stimulation, role playing, and other experiential techniques. Lecture 3 hours per week.

PSY 120—Human Relations (3 CR.) Introduces the theory and practice of effective human relations. Increases understanding of self and others and interpersonal skills needed to be a competent and cooperative communicator. Lecture 3 hours per week.

PSY 125—Interpersonal Relationships (3 CR.) Studies individual behavior as it affects the individual's relationships. Considers such topics as attitudes, needs, values, leadership, communication, and group dynamics. Teaches constructive methods of interpersonal problem solving. Lecture 3 hours per week.

PSY 126—Psychology for Business and Industry (3 CR.) Focuses on the application of psychology to interpersonal relations and the working environment. Includes topics such as group dynamics, motivation, employee-employer relationship, interpersonal communications, and techniques for selection and supervision of personnel. Lecture 3 hours per week.

PSY 201-202—Introduction to Psychology I-II (3 CR.) (3 CR.) Examines human and animal behavior, relating experimental studies to practical problems. Includes topics such as sensation/perception, learning, memory, motivation, emotion, stress, development, intelligence, personality, psychopathology, therapy, and social psychology. Lecture 3 hours per week.

PSY 207—Psychology of Assertiveness (3 CR.) Describes the principles and techniques of assertive behavior and their application to daily life. Provides opportunity to practice skills for effective communications and conflict resolution. Lecture 3 hours per week.

PSY 215—Abnormal Psychology (3 CR.) Prerequisite PSY 201. Explores historical views and current perspectives of abnormal behavior. Emphasizes major diagnostic categories and criteria, individual and social factors of maladaptive behavior, and types of therapy. Includes methods of clinical assessment and research strategies. Lecture 3 hours per week.

PSY 220—Introduction to Behavior Modification (3 CR.) Studies the history of behaviorism and the principles and applications of behavior modification. Emphasizes observation and application of behavior modification principles. Lecture 3 hours per week.

PSY 231-232—Life Span Human Development I-II (3 CR.) (3 CR.) Investigates human behavior through the life cycle. Describes physical, cognitive, and psycho-social aspects of human development from conception to death. Lecture 3 hours per week.

PSY 235—Child Psychology (3 CR.) Studies development of the child from conception to adolescence. Investigates physical, intellectual, social and emotional factors involved in the child's growth. Lecture 3 hours per week.

PSY 271-272—Introduction to Parapsychology I-II (3 CR.) (3 CR.) Presents the history of psychic phenomena from ancient to modern times and discusses man's attempt to understand and explain such phenomena. Reviews modern parapsychological research discoveries, and examines perspectives of natural sciences, social sciences and arts. Includes classroom experiments and demonstrations. Lecture 3 hours per week.

PSY 273-274—Selected Topics in Parapsychology (3 CR.) (3 CR.) Affords opportunity for in-depth study of selected topics in parapsychology. Offers experimental and theoretical guided research projects. Lecture 3 hours per week.

Radio and Television (RTV)

RTV 121-122—Advanced Servicing and Trouble-Shooting Techniques I-II (5 CR.) (5 CR.) Prerequisite RTV 124 or equivalent. Discusses electronic circuitry used in television, audio, and computer systems. Emphasizes developing ability to repair electronic equipment using the television receiver as instructional tool. Lecture 3 hours. Laboratory 6 hours. Total 9 hours per week.

RTV 124—TV Electronics (4 CR.) Includes methods of functional analysis and repair of basic receiver systems. Introduces electronic communications. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

Radiography (RAD)

RAD 111-112—Radiologic Science I-II (4 CR.) (4 CR.) Teaches concepts of radiation, radiography physics, fundamentals of electromagnetic radiation, electricity and magnetism, and application of these principles to radiography. Focuses on X-ray production, emission, and X-ray interaction with matter. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

RAD 121—Radiographic Procedures I (4 CR.) Introduces procedures for positioning the patient's anatomical structures relative to X-ray beam and image receptor. Emphasizes procedures for routine examination of the chest, abdomen, extremities, and axial skeleton. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

RAD 131-132—Elementary Clinical Procedures I-II (3 CR.) (3 CR.) Develops advanced technical skills in fundamental radiographic procedures. Focuses on manipulation of equipment, patient care, osseous studies, skull procedures, and contrast studies. Provides clinical experience in cooperating health agencies. Clinical 15 hours per week.

RAD 190—Coordinated Practice (4 CR.) Introduces advanced technical skills in fundamental radiographic procedures. Focuses on basic contrast media studies, osseous studies, and skull procedures. Provides clinical experiences in health care agencies. Clinical 24 hours per week.

RAD 205—Radiation Protection and Radiobiology (3 CR.) Studies methods and devices used for protection from ionizing radiation. Teaches theories of biological effects, cell and organism sensitivity, and the somatic and genetic effects of ionizing radiation. Presents current radiation protection philosophy for protecting the patient and technologist. Lecture 3 hours per week. .

RAD 215—Correlated Radiographic Theory (2 CR.) Presents intensive correlation of all major radiologic technology subject areas. Studies interrelationships of biology, physics, principles of exposure, radiologic procedures, patient care, and radiation protection. Lecture 2 hours per week.

RAD 221—Radiographic Procedures II (4 CR.) Continues procedures for positioning the patient's anatomical structures relative to X-ray beam and image receptor. Emphasizes procedures for routine examination of the skull, contrast studies of internal organs, and special procedures employed in the more complicated investigation of the human body. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

RAD 225—Specialized Patient Care Procedure (2 CR.) Focuses on specific nursing procedures associated with routine and emergency conditions encountered in the performance of radiographic examinations. Teaches medication preparation and administration principles. Lecture 2 hours per week.

RAD 231-232—Advanced Clinical Procedures I-II (5 CR.) (5 CR.) Reinforces technical skills in fundamental radiographic procedures. Introduces more intricate contrast media procedures. Focuses on technical proficiency, application of radiation, protection, nursing skills, and exposure principles. Teaches advanced technical procedures and principles of imaging modalities, correlating previous radiographic theory, focusing on full responsibility for patients in technical areas, perfecting technical skills, and developing awareness of related areas utilizing ionizing radiation. Provides clinical experience in cooperating health agencies. Clinical 25 hours per week.

RAD 240—Radiographic Pathology (3 CR.) Presents a survey of common medical and surgical disorders that affect radiographic image. Discusses conditions related to different systems of the human body. Studies the correlation of these conditions with radiographs. Lecture 3 hours per week.

RAD 245—Radiologic Specialties (2 CR.) Introduces the study of treatment of disease as it relates to various imaging modalities, computerized tomography, and magnetic resonance imaging. Introduces computers and other innovations in radiology. Emphasizes theory, principle of operation, and clinical application of these topics. Lecture 2 hours per week.

RAD 290—Coordinated Practice (7 CR.) Provides additional experience in radiographic procedures, demonstrating skills in technical proficiency, nursing procedures, radiation protection, and evaluating experience in cooperating health agencies. Clinical 32 hours per week.

Real Estate (REA)

REA 100—Principles of Real Estate (4 CR.) Examines practical applications of real estate principles. Includes a study of titles, estates, land descriptions, contracts legal instruments, financing, and management of real estate. Lecture 4 hours per week.

REA 105—Real Estate Mathematics (3 CR.) Focuses on the application of fundamental mathematical principles of special real estate problems. Includes, but is not limited to, allocation of areas of land, pricing land, computation of commissions, earnings on investments, calculation of escrow items, and closing costs. Lecture 3 hours per week.

REA 115—Principles of Mortgage Loan Processing (2 CR.) Covers the procedures for processing government-sponsored and conventional mortgage loans from application to final submission. Includes analyzing loan applications, contracts, credit reports, and property appraisals. Reviews basic real estate finance and related consumer protection laws. Lecture 2 hours per week.

REA 205—Marketing of Residential Construction (3 CR.) Explores the basics of real estate law in depth. Covers the psychology of buying and selling, merchandising, advertising, permanent financing, qualifying buyers, legal documents, sales management, and closing the sale. Reviews the role of condominium and homeowners' associations. Stresses the influence of marketing objectives on planning, design, and construction. Lecture 3 hours per week.

REA 215—Real Estate Brokerage (3 CR.) Prerequisite: REA 100. Considers administrative principles and practices of real estate brokerage, financial control, and marketing of real property. Lecture 3 hours per week.

REA 216—Real Estate Appraisal (3 CR.) Prerequisite: REA 100. Explores fundamentals of real estate evaluation: methods used in determining value; application of the valuation process, and the principal techniques by simulations, working problems, and reviewing actual appraisals. Includes the opportunities available in the appraisal field. Lecture 3 hours per week.

REA 217—Real Estate Finance (3 CR.) Prerequisite: REA 100. Presents principles and practices of financing real estate sales and properties. Analyzes various types of mortgage payments and contracts, financing of homes and industrial properties and building, loan applications, relationship between correspondent and investor, construction loans. Lecture 3 hours per week.

REA 225—Real Property Management (3 CR.) Introduces 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.

REA 230—Principles and Practices of Real Estate for the Homebuilder (3 CR.) Surveys urban real estate principles and practices. Discusses location theory and structure and growth of cities. Identifies social, political, and economic factors influencing real estate markets. Focuses on home building; national and state housing legislation; nature and objectives of the firm; and the impact of environmentalism, political relations and consumerism. Studies models used in urban development. Lecture 3 hours per week.

REA 245—Real Estate Law (3 CR.) Prerequisite: REA 100. Studies real estate law, including rights incidental to property ownership and management, agency contract and application to real estate transfer covenancing probate proceedings, trust transactions, and tax implications. Lecture 3 hours per week.

REA 246—Real Estate Economics (3 CR.) Examines the nature and classification of land economics, the

development of property, construction and subdivision, economic values and real estate evaluation, real estate cycles and business fluctuations, residential market trends, rural property, and special purpose property trends. Lecture 3 hours per week.

REA 247—Real Estate Investments (3 CR.) Focuses on estate investments with emphasis on taxation, limited partnerships, syndications, exchanges and modern techniques of mortgage equity requirements and depreciation guidelines. Lecture 3 hours per week.

REA 256—Land Planning and Use (3 CR.) Presents land value and usage, planning, zoning regulations, building and site requirements, sanitation and utilities, highest and best use concept, population analysis, influence of market forces, and public policies. Lecture 3 hours per week.

REA 265—Commercial Real Estate Sales (3 CR.) Provides a basic understanding of sales practices to list, sell, or lease space of income producing properties. Lecture 3 hours per week.

Safety (SAF)

SAF 120—Safety & Health Standards: Regulations and Codes (3 CR.) Teaches development of safety standards, the Occupational Safety and Health Act (OSHA), its rules and regulations; penalties for non-compliance, and methods of compliance. Includes an examination of Government Regulatory Codes and appraisal of consensus, advisory, and proprietary standards. Lecture 3 hours per week.

SAF 126—Principles of Industrial Safety (3 CR.) Teaches principles and practices of accident prevention, analysis of accident causes, mechanical safeguards, fire prevention, housekeeping, occupational diseases, first aid, safety organization, protection equipment and general safety principles and promotion. Lecture 3 hours per week.

SAF 127—Industrial Safety (2 CR.) Provides basic understanding of safety and health in an industrial situation. Includes hazardous materials, substances, conditions, activities, and habits as well as the prescribed methods and equipment needed for the apprentice to protect himself and others. Lecture 2 hours per week.

SAF 131—Materials Handling, Machinery, Handtools & Control I (3 CR.) Examines physical hazards of environment including power sources, methods of control, hazards, storage and materials handling. Examines general safety rules regarding the use of handtools, portable power tools, and machine tools; maintenance, repair and inspection programs to be established, and personal protective equipment to be utilized. Lecture 3 hours per week.

SAF 140—Introduction to Industrial Hygiene (3 CR.) Studies environmental energy, physical and chemical hazards, including gases, vapors, dusts, fumes, and mists; the importance of personal protective equipment, and contamination control methodology. Lecture 3 hours per week.

SAF 215—Industrial Sound and Noise (3 CR.) Prerequisite HLT 146. Studies the physics of noise, the physiology of hearing and the impact upon the worker of noise in the occupational environment. Includes sound level measurement, analysis principles of audiometry, hearing protection and noise control techniques. Lectures 2 hours. Laboratory 2 hours. Total 4 hours per week.

SAF 225—Occupational Safety Engineering Techniques (3 CR.) Teaches practical safety approach to the methods used for recognition of potentially hazardous situation in the work enrivonment and measures used to correct such situation. Discusses techniques of systems' safety concepts and concepts of industrial engineering applicable to an analysis of safe work procedures. Lecture 3 hours per week.

Sign Communications (SCM)

SCM 100—Introduction to American Sign Language (3CR.) Teaches the fundamentals of finger-spelling, American sign language structure, and sign language vocabulary. Develops skills for communication with the hearing impaired. Introduces the non-language aspects of communications, including eye movement, facial expression, and body posture. Explores and develops skills in gesture pantomime and body language. Lecture 3 hours per week.

SCM 110—Intermediate American Sign Language (3 CR.) Prerequisite SCM 100 or consent of the instructor. Provides students with additional American sign language vocabulary. Teaches idiomatic expressions, colloquialisms, and receptive skills. Lecture 3 hours per week.

Sociology (SOC)

SOC 200—Principles of Sociology (3 CR.) Introduces fundamentals of social life. Presents significant research and theory in areas such as culture, social structure, socialization, deviance, social stratification, and social institutions. Lecture 3 hours per week.

SOC 201-202—Introduction to Sociology I-II (3 CR.) (3 CR.) Introduces basic concepts and methods of sociology. Presents significant research and theory in areas such as socialization, group dynamics, gender roles, minority group relations, stratification, deviance, culture, community studies. Includes education, religion, political system, and economic system. Lecture 3 hours per week.

SOC 207—Medical Sociology (3 CR.) Surveys the social, economic, cultural, and individual factors in health and illness. Examines issues of wellness, health-care systems, physician-nurse-patient relationships, medical costs, ethics and policy. Lecture 3 hours per week.

SOC 209—American Folk Culture (3 CR.) Surveys American folk cultures using sociological theory and research. Examines history, population, social organization, and social institutions of folk cultures such as the Mennonites, Native Americans and the people of Appalachia. Lecture 3 hours per week.

SOC 210—Survey of Physical and Cultural Anthropology (3 CR.) Examines physical characteristics and lifestyles of human ancestors and present populations. Explores cultures from around the world to study diverse adaptations made by humans. Lecture 3 hours per week.

SOC 211-212—Principles of Anthropology (3 CR.) (3 CR.) Inquires into the origins, development, and diversification of human biology and human cultures. Includes fossil records, physical origins of human development, human population genetics, linguistics, cultures' origins and variation, and historical and

contemporary analysis of human societies. Lecture 3 hours per week.

SOC 215—Sociology of the Family (3 CR.) Studies topics such as marriage and family in social and cultural context. Addresses the single scene, dating and marriage styles, child-rearing, husband and wife interaction, single-parent families, alternative lifestyles. Lecture 3 hours per week.

SOC 216—Child-Parent Community Relations (3 CR.) Emphasizes understanding of interrelationships within the community that influence childhood development. Includes the role of religion, ethical values, and citizenship in the education of children. Lecture 3 hours per week.

SOC 217—Parent-Child Interaction (3 CR.) Studies experiences and problems in raising children from infancy through the teen-age years. Introduces stages of child development and explores several parenting strategies. Lecture 3 hours per week.

SOC 218—Family Violence (3 CR.) Examines occasions and reasons family relationships do not work. Includes types of family violence and its prevention. Lecture 3 hours per week.

SOC 219—Sociology of Religion (3 CR.) Introduces role of religion in social life of members of a community. Includes socialization and recruitment, social class and religion, social control and religion, new religions, and religious trends in the future. Lecture 3 hours per week.

SOC 220—Socialization and the Life Cycle (3 CR.) Discusses the cultural and historical influences on life cycle though examination of the various agents of socialization, such as family, school, and mass media. May address life stages of adolescence, adulthood, and aging. Lecture 3 hours per week.

SOC 225—Gender and Sex Roles (3 CR.) Analyzes influence of major social institutions and socialization in shaping and changing sex roles in contemporary society. Examines differential access to positions of public power and authority for men and women. Lecture 3 hours per week.

SOC 226—Human Sexuality (3 CR.) Studies sociological research and theory on sexuality. Includes anatomy and physiology, birth control, sexually transmitted diseases and sexual behavior. Lecture 3 hours per week.

SOC 235—Juvenile Delinquency (3 CR.) Studies demographic trends, casual theories, and control of juvenile delinquency. Presents juveniles' interaction with family, schools, police, courts, treatment programs, and facilities. Also approved for ADJ Juvenile curriculum. Lecture 3 hours per week.

SOC 236—Criminology (3 CR.) Studies research and causal theories of criminal behavior. Examines crime statistics, crime victims, and types of criminal offenses. Introduces role of police, judicial and correctional system in treatment and punishment of offenders. Is also approved for ADJ Criminology. Lecture 3 hours per week.

SOC 245—Sociology of Aging (3 CR.) Introduces study of aging with special emphasis on later stages of the life cycle. Includes theories of aging, historical and comparative settings, social policy, and future trends of aging. Lecture 3 hours per week.

SOC 255—Comparative Sociology (3 CR.) Analyzes varieties of human behavior, beliefs and values in Western and non-Western cultures. Emphasizes similarities and variations among social institutions such as family, law, religion, economics, and government. Lecture 3 hours per week.

SOC 265—Social Psychology (3 CR.) Prerequisite SOC 200 or 201. Examines individuals in social contexts: social roles, group processes and intergroup relations. May include small group interaction, social behavior, social cognition, conformity, attitudes, and motivation. Lecture 3 hours per week.

SOC 268—Social Problems (3 CR.) Applies sociological concepts and methods to analysis of current social problems. Includes delinquency and crime, mental illness, drug addiction, alcoholism, sexual behavior, population crisis, race relations, family and community disorganization, poverty, automation, wars, and disarmament. Lecture 3 hours per week.

Spanish (SPA)

SPA 101-102—Beginning Spanish I-II (4 CR.) (4 CR.) Introduces understanding, speaking, reading, and writing skills and emphasizes basic Spanish sentence structure. Lecture 4 hours per week.

SPA 201-202—Intermediate Spanish I-II (4 CR.) (4 CR.) Prerequisite SPA 102 or equivalent. Continues to develop understanding, speaking, reading, and writing skills. Lecture 4 hours per week.

Speech and Drama (SPD)

SPD 100—Principles of Public Speaking (3 CR.) Applies theory and principles of public address with emphasis on preparation and delivery. Lecture 3 hours per week.

SPD 105—Oral Communication (3 CR.) Studies effective communication with emphasis on speaking and listening. Lecture 3 hours per week.

SPD 131-132—Acting I-II (3 CR.) (3 CR.) Develops personal resources and explores performance skills through such activities as theatre games, role playing, improvisation, work on basic script units, and performance of scenes. Lecture 2 hours. Laboratory 3 hour. Total 5 hours per week.

SPD 136—Theatre Workshop (1-6 CR.) Enables students to work in various activities of play production. The student participates in performance, set design, stage carpentry, sound, costuming, lighting, stage managing, props, promotion, or stage crew. May be repeated for credit. Variable hours per week.

SPD 151-152—Film Appreciation I-II (3 CR.) (3 CR.) Aims to increase the student's knowledge and enjoyment of film and film criticism through discussion and viewing of movies. Lecture 3 hours per week.

SPD 250—The Art of the Film (3 CR.) Introduces the art of the film through a survey of film history; viewing, discussion, and analysis of selected films. Studies film techniques such as composition, shot sequence, lighting, visual symbolism, sound effects, and editing. Lecture 3 hours per week.

Student Development (STD)

STD 100—Orientation (1 CR.) Assists students in transition to college. Provides overviews of college policies, procedures, curricular offerings. Encourages contacts with other students and staff. Assists students

toward college success through information regarding effective study habits, career and academic planning, and other college resources available to students. May include English and math placement testing. Strongly recommended for beginning students. Required for graduation. Lecture 1 hour per week.

STD 104—Study Skills (1-3 CR.) Assists students in planning strategies to overcome nonproductive study habits and in implementing positive study behaviors. Includes management, memory improvement, note-taking, and test-taking. Lecture 1-3 hours per week.

STD 105—Personal Development from a Woman's Perspective (1-2 CR.) Addresses the psychological and educational adjustment needs of the female college student. Covers three segments: personal development, career education, and study skills. Emphasizes the special needs of the re-entry woman. Provides education and support for the individual. Lecture 1-2 hours per week.

STD 106—Preparation for Employment (1-2 CR.) Provides experience in writing resumes, preparation of applications, letters of application, and successfully preparing for and completing the job interview. Assists students in identifying their marketable skills and aptitudes. Develops strategies for successful employment search. Assists students in understanding effective human relations techniques and communication skills in job search. Lecture 1-2 hours per week.

STD 107—Career Education (2 CR.) Surveys career options available to students. Stresses career development and assists in the understanding of self in the world of work. Assists students in applying decision making to career choice. May be substituted for STD 100. Lecture 2 hours per week.

STD 108—College Survival Skills (2 CR.) Provides an orientation to the college. Introduces study skills, career and life planning. Offers an opportunity to engage in activities aimed at self-discovery. Emphasizes development of "coping skills" such as listening, interpersonal relations, competence, and improved self-concept. Recommended for students enrolled in developmental courses. May be substituted for STD 100. Lecture 2 hours per week.

Welding (WEL)

WEL 116—Welding I (Oxyacetylene) (2 CR.) Teaches oxygen/acetylene welding and cutting including safety of equipment, welding, brazing and soldering procedures and cutting procedures. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

WEL 120—Fundamentals of Welding (2 CR.) Introduces history of welding processes. Covers types of equipment and assembly of units. Stresses welding procedures such as fusion, non-fusion, and cutting oxyacetylene. Introduces arc welding. Emphasizes procedures in the use of tools and equipment. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

WEL 121—Arc Welding (2 CR.) Prerequisite: WEL 120 or departmental approval. Studies the operation of AC and DC power sources, weld heat, polarities, and electrodes for use in joining various alloys by the SMAW process. Covers welds in different types of joints and different welding positions. Emphasizes safety procedures. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

WEL 135—Inert Gas Welding (2 CR.) Prerequisite: WEL 120 or departmental approval. Introduces practical operations in use of inert gas shielded arc welding. Studies equipment operation, setup, safety, and practice of GMAW (MIG) and GTAW (TIG). Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

WEL 145—Welding Metallurgy (3 CR.) Prerequisite: WEL 120 or departmental approval. Studies steel classifications, heat treatment procedures, properties of ferrous and non-ferrous metals. Discusses techniques and practices of testing welded joints and destructive/nondestructive, visual magnetic, and fluorescent testing. Lecture 3 hours per week.

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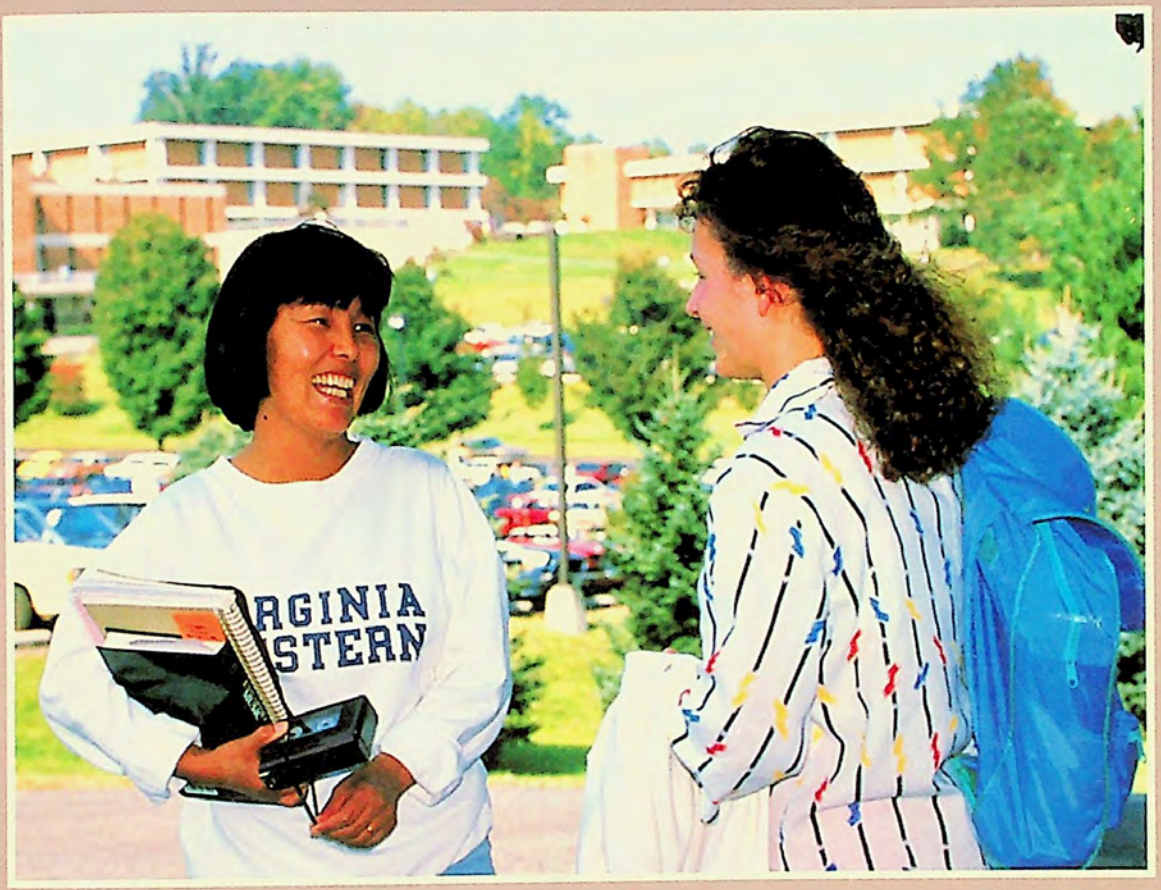

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