

# 1997-98 COLLEGE CATALOG



Virginia Western Community College  
3095 Colonial Avenue  
P.O. Box 14007  
Roanoke, VA 24038  
<http://www.vw.cc.va.us>  
TDD: (540) 857-7918

General Information and  
Registration System: (540) 857-7543

*The statements and provisions in this catalog and in the Student Handbook are not to be regarded as an irrevocable contract between the student and the College. The College reserves the right to change, when warranted, any of the provisions, schedules, calendars, programs, courses, or fees, as might be required. Supplements may be issued to this catalog as necessary by the College.*

*It is the policy of the Virginia Community College System and Virginia Western Community College to maintain and promote equal employment and educational opportunities without regard to race, color, sex, age, religion, disability, national origin, or other non-merit factors. For further information, contact the Title IX Coordinator in Fishburn Hall, Room 018B, 857-6067 or the Section 504 Coordinator, T105, 857-7286. TDD number is 540-857-7918.*

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## Academic Calendar for 1997

### SUMMER TERM 1997

#### 11-Week Session

First Day of Classes .....	May 19
Last Day to Register/Add a Class .....	May 23
Last Day to Drop and Receive a Refund .....	May 29
Last Day to Apply for Graduation.....	June 10
Last day to Withdraw/No Grade Penalty .....	July 3
Independence Day Holiday .....	July 4
Last Day of Classes .....	August 1

#### 10-Week Session

First Day of Classes .....	May 19
Last Day to Register/Add a Class .....	May 23
Last Day to Drop and Receive a Refund .....	May 28
Last Day to Apply for Graduation.....	June 10
Last Day to Withdraw/No Grade Penalty .....	June 27
Independence Day Holiday .....	July 4
Last Day of Classes .....	July 25

#### First 5-Week Session

First Day of Classes .....	May 19
Last Day to Register/Add a Class .....	May 20
Last Day to Drop and Receive a Refund .....	May 23
Last Day to Withdraw/No Grade Penalty .....	June 6
Last Day to Apply for Graduation.....	June 10
Last Day of Classes .....	June 20

#### Second 5-Week Session

First Day of Classes .....	June 23
Last Day to Register/Add a Class .....	June 25
Last Day to Drop and Receive a Refund .....	June 27
Independence Day Holiday .....	July 4
Last Day to Withdraw/No Grade Penalty .....	July 11
Last Day of Classes .....	July 25

### FALL SEMESTER 1997

#### 16-Week Session

First Day of Classes .....	August 21
Last Day to Register/Add a Class* .....	August 29*
Labor Day Holiday.....	September 1
Last Day to Drop and Receive Refund.....	Sept. 3
Last Day to Apply for Fall Graduation .....	Oct. 10
Last Day to Withdraw/No Grade Penalty .....	Oct. 29
Academic Advising** .....	October 28**
Faculty Research Day** .....	November 26**
Thanksgiving Holidays .....	November 27-28
Last Day of Classes .....	December 10
Final Examinations.....	December 11-17

\* Night Classes may register so long as the class has not met twice.

\*\* No day or night classes.

#### First 8-Week Session

First Day of Classes .....	August 21
Last Day to Register/Add a Class .....	August 25
Last Day to Drop and Receive Refund.....	August 28
Labor Day Holiday .....	September 1
Last Day to Withdraw/No Grade Penalty .....	Sept. 24
Last Day to Apply for Fall Graduation .....	Oct. 10
Last Day of Classes .....	October 15
Final Examinations.....	Last Class Meeting

#### Second 8-Week Session

First Day of Classes .....	October 16
Last Day to Register/Add a Class .....	October 20
Last Day to Drop and Receive Refund .....	October 23
Academic Advising** .....	October 28**
Last Day to Withdraw/No Grade Penalty .....	Nov. 19
Faculty Research Day** .....	November 26**
Thanksgiving Holidays .....	November 27-28
Last Day of Classes .....	December 10
Final Examinations .....	December 11-17

\*\* No day or night classes.

### SPRING SEMESTER 1998

#### 16-Week Session

First Day of Classes .....	January 6
Last Day to Register/Add a Class* .....	January 14*
Last Day to Drop and Receive Refund .....	Jan. 19
Last Day to Apply - Spring Graduation.....	Feb. 10
Spring Break** .....	March 2-7**
Last Day to Withdraw/No Grade Penalty .....	Mar. 23
Last Day of Classes .....	April 27
Snow Makeup/Study Days/ .....	April 28-May 1
Final Examinations.....	May 4-9
Commencement Ceremony .....	May 13

#### First 8-Week Session

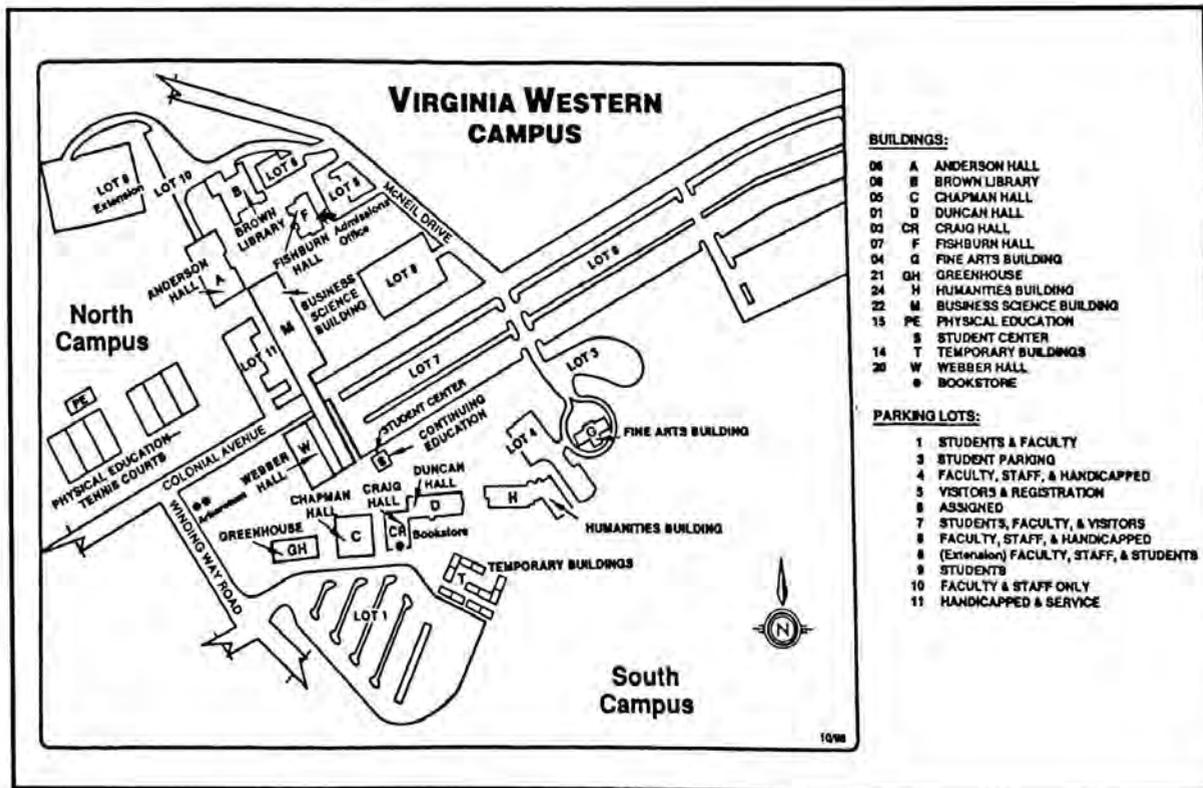
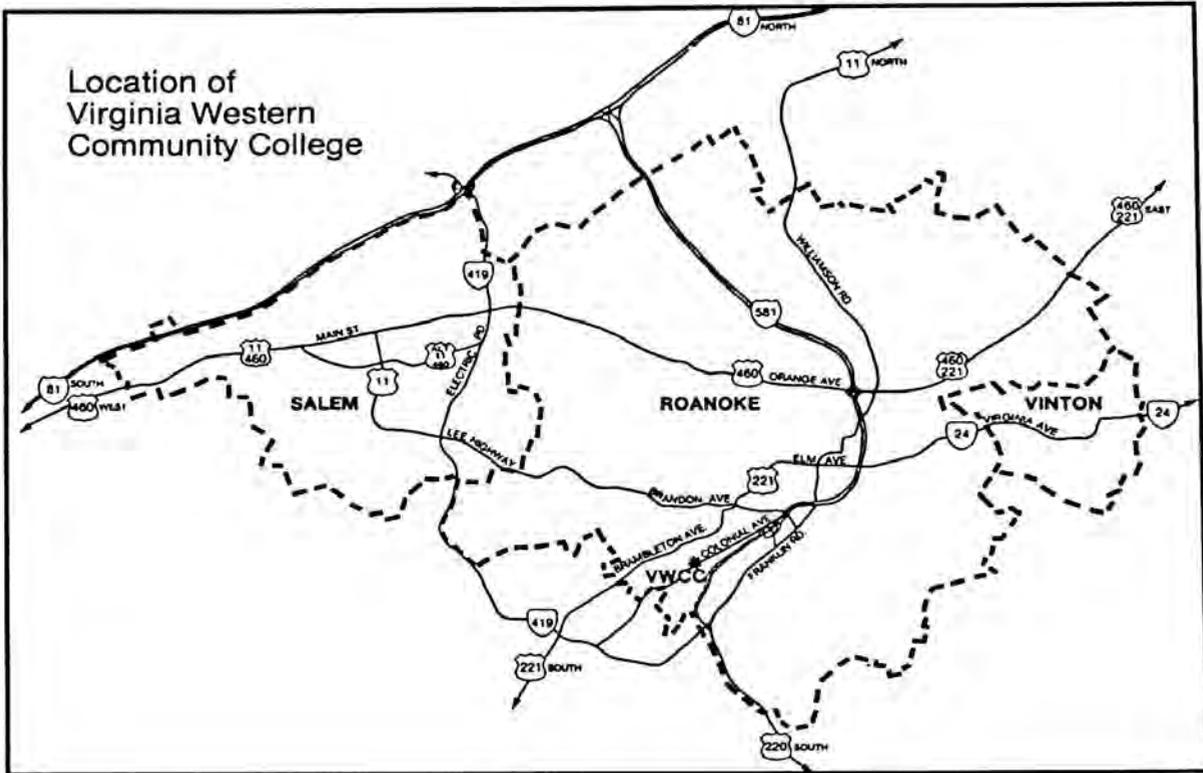
First Day of Classes .....	January 6
Last Day to Register/Add a Class .....	January 9
Last day to Drop and Receive Refund .....	January 13
Last Day to Withdraw/No Grade Penalty .....	Feb. 9
Last Day to Apply - Spring Graduation.....	Feb. 10
Last Day of Classes .....	March 9
Final Examinations .....	Last Class Meeting

#### Second 8-Week Session

Spring Break** .....	March 2-7**
First Day of Classes .....	March 10
Last Day to Register/Add a Class .....	March 13
Last day to Drop and Receive Refund .....	March 17
Last Day to Withdraw/No Grade Penalty .....	April 13
Last Day of Classes .....	April 27
Snow Makeup/Study Days.....	April 28-May 1
Final Examinations .....	May 4-9
Commencement Ceremony .....	May 13

\* Night Classes may register so long as the class has not met twice.

\*\* Spring Break may be used as makeup days if too many class days are missed due to inclement weather.



**Administration**

President .....	Dr. Charles L. Downs
Dean of Academic & Student Affairs .....	Dr. J. Andrew Archer
Dean of Financial and Administrative Services .....	Dwight E. Blalock
Administrative Assistant to the President/Director of College Support Services .....	Dr. Mark Q. Emick, Sr.
Administrative Officer for Business and Industrial Training .....	Charles P. Newell
Administrative Officer for Special Programs .....	Dr. Gloria A. Lindsay
Director of Business and Industrial Training .....	Michael D. Byrd
Director of Community Relations (temporary reassignment) .....	Dr. Clarence C. Mays
Director of Continuing Education .....	Ronald L. Coleman
Director of Institutional Research .....	Dr. Charles A. Houston
Director of Instructional Support Services .....	Dr. David C. Hanson
Division Chair of Business .....	Carroll L. Gentry
Division Chair of Engineering .....	Wayne R. Michie
Division Chair of Humanities (Interim) (temporary reassignment) .....	Dr. John S. Capps
Division Chair of Science, Math, and Health Technology .....	Benjamin F. Zirkle, III
Division Chair of Social Science .....	Dr. James E. Sargent
Coordinator of Admissions Policies and Programs .....	F. Gordon Hancock
Coordinator of Learning Center .....	William A. Salyers, Jr.
Coordinator of Library .....	David L. Hillman
Financial Aid and Veterans Affairs Officer .....	Dr. Larry E. Ewing

**College Telephone Numbers**

Admissions Office and Registration .....	857-7231
Alliance For Excellence .....	857-7583
Bookstore .....	857-7334
Business Office .....	857-7201
Business Science Division .....	857-7272
Campus Police .....	857-7797
Career Center .....	857-7298
Center for Business, Industry and Technology (CBIT).....	857-7315
Continuing Education Center .....	857-7281
Counseling .....	857-7237
Dental Clinic .....	857-7221
Engineering Division .....	857-7275
Financial Aid .....	857-7331
Gymnasium Office .....	857-6068
Health Technology Division .....	857-7306
Humanities Division .....	857-7385
Institutional Research .....	857-7314
International Education .....	857-6021
Learning Center .....	857-7250
Library .....	857-7303
Math and Science Division .....	857-7273
Math Center .....	857-7250
Personnel Office .....	857-7282
Records Office .....	857-7236
Social Science Division .....	857-7276
Student Activities .....	857-7390
Student Support Services .....	857-7286
Transfer Center .....	857-7298
Veterans' Affairs .....	857-7395
Writing Center .....	857-7250
Emergency .....	857-7979
Inclement Weather .....	857-7543
Information/Registration .....	857-7543

## COLLEGE 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 6,500.

### Mission Statement

Virginia Western Community College is one of 23 colleges that comprise the Virginia Community College System. It derives its charter from the General Assembly of Virginia through the Community College Act of 1966. The College's broad mandate is to prepare students for employment, advanced collegiate education, and active citizenship in the local, national, and global community.

In order to fulfill its mission, the College is dedicated to the belief that all people should have an equal opportunity to develop and expand their skills and knowledge. The College promotes this concept by making higher education available to all who can benefit through its open door admission policy, affordable tuition, and financial assistance. Instruction is offered in a variety of presentation formats both on campus and at convenient locations throughout the College's service area.

The quality educational opportunities presented by the College include associate degree, certificate, career studies, and industrial training programs, as well as developmental studies for those not fully prepared to enter these programs. An opportunity to gain college-level credit is available to selected high school students. College credits and Continuing Education Units are available to those requiring college courses for promotion and or certain professional certifications. The College provides a diverse schedule of course offerings that supports the self-interest and self-improvement needs of community residents. The needs of senior citizens and nontraditional students are served through special programs.

As part of its overall commitment to quality in higher education, Virginia Western provides a broad range of instructional and student support services. Modern library, computer, and laboratory resources are provided in support of instructional services. A staff of

professional counselors is available to help students examine and cope with options in their lives and careers. Extracurricular activities are designed to expand and enrich students' experiences at the College.

The College acquires and maintains the buildings, grounds, and equipment necessary to provide an environment conducive to learning. Since the College recognizes that it is a resource to the community, its services, activities, and facilities may be available to nonstudents when feasible.

### Educational Program Goals

The educational program goals of Virginia Western are to offer:

1. Associate degree programs to prepare individuals for careers as technical and paraprofessional workers.
2. Associate degree programs to prepare individuals for transfer as upper-division students to baccalaureate degree programs in four-year colleges.
3. Certificate programs, which prepare individuals for careers as technicians, skilled, and semi-skilled workers.
4. Developmental courses, which provide preparation for students who lack the academic background or prerequisite competencies necessary for success in curricula of study.
5. Student development services, which, through counseling and guidance, assist individuals with decisions regarding occupational, educational, and personal goals.
6. Training programs for specific employment opportunities that are available in business, industries, and professions.
7. Career Studies programs and Continuing Education programs, both credit and noncredit, which provide educational opportunities for persons who wish to continue and expand their learning experiences and employment opportunities.
8. Activities that foster greater international awareness.
9. Opportunities for qualified high school students who obtain college credit through dual enrollment arrangements between public schools and the College.
10. Cultural and educational programs that supplement the other programs of the College and promote a sense of civic responsibility.

### Accreditation

Virginia Western Community College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award associate degrees, diplomas, and certificates.

The College is a member of the Virginia Community College System and is approved by the State Board for Community Colleges. Virginia Western is also approved by the State Council of Higher Education for Virginia.

Certain curricula of the College are accredited by specialized accrediting organizations. They include business programs accredited by the Association of Collegiate Business Schools and Programs; health technology programs accredited by the National League for Nursing, the State Board of Nursing, the Joint Review Committee on Education in Radiologic Technology, the American Dental Association Commission on Dental Accreditation; and engineering programs accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (program in Electrical/Electronics Engineering Technology).

### **College Facilities**

Virginia Western is divided by Colonial Avenue into North and South Campuses. The South Campus has eight buildings, four of which were acquired in 1966 from the Roanoke Technical Institute.

Chapman Hall houses classrooms, faculty offices, and laboratories for Air-Conditioning and Refrigeration, Machine Shop and Radio/TV.

Craig Hall contains the College Bookstore, faculty offices, and general classrooms.

Duncan Hall contains classrooms and faculty offices.

Webber Hall houses the laboratories for Welding, Automated Manufacturing, Construction Engineering, Drafting, Electrical, Electronic Servicing, CAD, Engineering Microcomputers, classrooms, faculty offices and the Old Dominion University programs office.

The Fine Arts building will be undergoing a renovation project.

The Humanities Building on the South Campus opened in November 1994. The 30,000 square foot building houses studio, gallery, lecture and computer graphics lab space for the Art Department, photography darkroom and laboratory space, a large multipurpose room, and two general classrooms.

A 2,100 square foot greenhouse along with a two-acre Community Arboretum is also located on South Campus.

A new Student Center opened in September 1996. This facility houses Continuing Education, Center for Business, Industry and Technology (CBIT), Student Activities Office, Career and Transfer Center, Student Government Association and Alliance for Excellence offices. A student area and several conference rooms are also located in this building.

Several temporary buildings on the South Campus provide space for Campus Police, Facilities

Management, Tech Prep Program, Student Support Services, and the Radford University programs.

The North Campus has four buildings surrounded by a courtyard planted with shrubs selected to accent the four seasons. The campus was dedicated on October 23, 1969, and its buildings were named for men influential in education or in the development of the Southwestern Virginia region.

Fishburn Hall, the Administrative Building, houses the offices of the President, the Dean of Academic and Student Affairs, the Dean of Financial and Administrative Services, and the Business Office, Personnel Office, Payroll Office and Cashiers Office. The building also houses the Offices of Admissions, Records, Counseling, Financial Aid, and Veterans Affairs. Several other offices and classrooms are also located in Fishburn Hall.

Opposite of Fishburn Hall is the science and mathematics building, Anderson Hall. Anderson Hall contains facilities for the Health Technologies of Nursing, Dental, and Radiography, laboratories for the natural sciences, classrooms, faculty offices, Duplicating Department, and the Office of Institutional Research. A Dental Clinic that is open to the public and offers services at no charge is also located in Anderson Hall.

In the center of the courtyard is Brown Library. The Library also houses the Learning Center, Graphic Arts, Math Center, Reading Center and the Child Care Media Center.

The Business Science Building, alongside Colonial Avenue, contains the Computing Center, administrative support and information systems technology classrooms, management and accounting laboratories, and faculty and staff offices. A cafeteria, drama and speech classroom, theater workshop, and the Whitman Auditorium are also located in this building.

The campus also has a bridge spanning Colonial Avenue that connects Webber Hall and the Business Science Building. This connection makes it possible to access both North and South Campus without physically crossing the road.

The College's six lighted tennis courts are located on North campus along with a Physical Education building that contains classrooms and faculty offices.

### **Center for Business, Industry, and Technology**

The Center for Business, Industry, and Technology, located on South Campus in the Student Center, S102, is dedicated to working with business, industry, and government in the Roanoke Valley. The Center's goal is to provide up-to-date training information, resources, and support services to the existing business community, as well as to potential business and industry.

Strategies to accomplish this goal include the implementation of a combination of several programs at

Virginia Western's Center for Business, Industry, and Technology (CBIT). The Center is ready to assist you with your training needs.

Vision

Virginia Western Community College's Center for Business, Industry and Technology will be a leader in training and development for business, industry, and government in Virginia.

Mission

Virginia Western Community College's Center for Business, Industry, and Technology mission is to provide state-of-the art training and retraining resources, information, consulting and support services to the business community in the region.

**Benefits to Business and Industry**

Eliminates the need for special training staff and related costs

Eliminates the need for designated space and special equipment for training

Supervisory and/or production staff time can be directed to regular responsibilities rather than redirected for training

Enables new and/or small companies to compete with more established or larger companies by providing the kind of training necessary to be competitive

Reduces or eliminates down time for training -- company equipment can remain in productive operation

Enables new businesses or industries to be fully operational upon opening

For additional information contact:

Michael D. Byrd, Director  
Business, Industry and Technology  
Virginia Western Community College  
P.O. Box 14007  
Roanoke, VA 24038  
Telephone: (540) 857-7315

## 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 age 15-17 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." 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 required 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 the health technology information specialist 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 Policies and Programs.

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

- a. Students wishing to enter a different curriculum and have at least a 2.0 on the courses applicable to the new curriculum;
- b. Students who were suspended for low cumulative GPA and have an acceptable curriculum GPA;
- c. Noncurricular students wishing to take courses that are primarily job training;
- d. Students who feel they have mitigating circumstances should direct a letter to the Admissions Committee asking for acceptance. The letter must address the following:
  - (1) The course or courses desired;
  - (2) The goal or curriculum which will be pursued;

- (3) A statement explaining the academic difficulty that led to suspension;
- (4) 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 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."

**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.

### **Admission Priorities**

When admission to certain selective programs must be limited because the number of applicants exceeds available space, priority shall be given to all qualified applicants as follows: (1) residents of the political subdivisions supporting the college, followed by (2) other Virginia residents, (3) residents of other states, and finally (4) international students with student or appropriate visas.

### **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. TOEFL scores must be submitted along with the application.

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.

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 but are responsible for service fees, 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 for Admission."

Transfer students must have official transcripts from all colleges previously attended mailed directly to the Admissions Office, Virginia Western Community College, P.O. Box 14007, Roanoke, VA 24038. (See "College Transcripts")

Transfer students who are ineligible to return to a college previously attended generally will not be eligible to enroll at Virginia Western until at least 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 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 and Credit-by-Examination**

Students may be awarded college credit if they can demonstrate that previous educational study, training or work experience entitles them to credit for specific courses applicable to their program of study. Appropriate documentation for special training or experience must be provided and included in the student's file. Students should contact the Coordinator of Admissions and Records to determine the necessary steps for receiving such credit.

### **Credit-by-Examination**

The college participates in the nationally recognized **Advanced Placement (AP) and College-Level Examination Program (CLEP)**. Students must provide an official copy of their score report and must meet the minimum score requirement for the course. In addition, locally prepared departmental "challenge" examinations are available for some courses offered by the college. (Normally, local examinations are not given when national exams are available.) A student may take a challenge exam for a course only once and a challenge may not be used to remove an "I" or "F" grade or to improve a grade already earned. In addition, a student may not challenge a lower level course in a subject for which he or she has previously earned credit. Credits awarded by challenge examination may apply toward graduation requirements and will become part of the student's permanent record. The grade earned on a departmental exam will be entered on the student's transcript.

### **Military Credit**

As a participating member of Servicemembers Opportunity Colleges (SOC), Virginia Western follows the American Council on Education's ACE Guide to the Evaluation of Educational Experiences in the Armed Services in determining the value of learning acquired in military service when applicable to the service member's program of study. The college also uses CLEP, DANTES, and Advanced Placement (AP) credit-by-examination for awarding credit to servicemembers.

### **Dual Enrollment for High School Students**

High school students 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 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 Policies and Programs.

### **Classification of Students**

All students are classified according to the following categories:

**CURRICULAR STUDENT** - A student working toward completion of an associate degree, 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 full-time 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 Records Office at Virginia Western 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 Registrar is the official in charge of student records. Administrators, counselors, and faculty who have need to see student records to assist a student in their 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 Registrar 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 Registrar's attention to any possible errors.
- B. If the Registrar finds the item or items to be in error, he will initiate corrective action.

- C. If the Registrar 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.

### **Release of Directory Information**

"Directory Information" (name, address, program of study, and semesters in attendance) may be released upon request at the discretion of the college. Any student who does not wish to be included in the release of directory information must provide a written request to the Registrar.

## **FREQUENTLY ASKED QUESTIONS....AND ANSWERS**

**What do I need to do to enroll for classes at Virginia Western?** New students should bring a completed application form to the Admissions Office located on the ground floor of Fishburn Hall. Students who have not been enrolled for a year or more must reapply to the college. Most types of students can register themselves by telephone if they prefer to do so. Instructions are printed in the *Schedule of Classes*.

**When does registration begin...and end?** The registration period for regular session classes normally begins about four weeks before the start of each term and continues throughout the first week of classes. Specific dates are published in the *Schedule of Classes* and can be obtained by calling Admissions at 857-7231.

**Can I register and pay my tuition without coming to campus?** Students with a current application on file can register by telephone (857-7543) under certain conditions. Tuition can be paid by mail or by telephone. Students may mail a check (checks must have the correct amount and should include the student's social security number). Cash should not be mailed.

**How and when can I receive a tuition refund?** Students may drop a class by telephone or in person by submitting an add/drop form to Admissions by the announced deadline (published in the *Schedule of Classes*). Most refunds are processed after the last day to drop, and it normally takes 2-4 weeks for refunds to be processed through the state treasurer in Richmond. Refunds are mailed directly to the student. Students who withdraw from a class after the add/drop period cannot receive a tuition refund (nor a tuition credit) for the course.

**What can I do if a class I need is closed?** Students are registered on a first-come, first-serve basis. Some classes have firm size limits (e.g. science lab courses). Students can add their name to a waiting list, and in some instances, another section may be opened to accommodate additional students. Also, after the deadline for early registration and delayed payment of tuition, seats sometimes open up.

**Where can I get a catalog?** They are sold at the cashiers' window on the first floor (not the ground floor) of Fishburn Hall and in the Bookstore located in Craig Hall. Catalogs also can be obtained by mail. The cost is \$2.

**How can I get a transcripts sent to....?** A student may simply send a written request (just a note with the student's name, social security number, signature, and the address where it is to be mailed) or they can stop by the Records Office in person and complete a form. There is no charge. The Records Office is located on the ground floor of Fishburn Hall across from Admissions.

**Does the college provide assistance with housing?** Yes, the Student Activities Office provides a referral service for off-campus apartments and rooms for rent. The Student Activities Office is located in the Student Center, Room S211 on South Campus.

**Does the college provide employment assistance to students?** Yes, the college provides career counseling as well as a job referral service for students. The Career Center is located in the Student Center, Room 202 on south campus.

## **EXPENSES**

### **Tuition**

Current tuition information can be obtained from the Admissions Office and will be printed in the Schedule of Classes.

Student tuition is paid on a credit-hour basis. The typical full-time academic load is between 15-17 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.)

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

All tuition and fees are approved by the State Board for Community Colleges which has the authority to change any and all tuition and fees without prior notice.

### **Tuition Refunds**

1. Students shall be eligible for a refund for those credit hours officially dropped during the drop period for the session. The refund will be at the full credit rate for those credits dropped. After the 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 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 non-refundable.

### **Technology Fee**

The State Board for Community Colleges adopted a \$1 per credit hour technology fee effective Spring Semester 1995. The fees collected will be used to support technological activities that will help the college improve its delivery of instructional programs and student support services.

### **Eligibility for In-State Tuition**

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 Policies and Programs.
3. Final administrative review will be made by an appeals committee.

Additional information is available from the Admissions Office.

### **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 \$300 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 the plastic shrink-wrap unopened and no markings or other damage. The book must be presented to the Bookstore Manager within the first two weeks of the semester to receive a refund. Refunds are made by check, which will be mailed to the student. No refunds are issued without a 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, Library and other college offices as appropriate.

## 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 Free Application for Federal Student Aid to Federal Student Aid Programs in Iowa City, Iowa. There is no charge for this application, which 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. This is required of all transfer students, regardless of whether or not financial aid was received at other colleges.

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 May 31.

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 a Free Application for Federal Student Aid.

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, P, or S) 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

**FEDERAL PELL GRANT** - a federal aid program based on financial need. A recipient must be enrolled 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.

**FEDERAL SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT (SEOG)** - a federal program designed to assist students with financial need which exceeds that covered by other aid programs. Priority is given to Pell Grant recipients with greatest remaining 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 and must be enrolled on at least a half-time basis.

**COMMONWEALTH AWARD PROGRAM** - a state program under which students with financial need can receive support up to the full amount of their tuition expense. To qualify, a student must be a domiciliary resident of Virginia and must be enrolled on at least a half-time basis.

**PART-TIME TUITION ASSISTANCE PROGRAM (PTAP)** - a state aid program similar to the Commonwealth Award Program, but directed to students enrolled for 3-5 credits per semester.

**VIRGINIA GUARANTEED ASSISTANCE PROGRAM (VGAP)** - a state program under which first time freshmen with financial need can receive tuition coverage plus a partial book allowance. To qualify, a student must be a dependent applicant, enrolled on a full-time basis, and demonstrate a high school grade point average of at least 2.50.

**MARY MARSHALL 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 by July 30.

**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** - two scholarships are awarded at the end of Spring semester to students ready to enter the second year of the nursing program. One scholarship is based primarily on financial need, and the other on outstanding academic achievement.

**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:

- American Business Women's Association
- American Dental Hygienists' Association
- Atlantic Companies
- Auxiliary to the Roanoke Valley Dental Society
- Mike Bassett Memorial Scholarship Program
- Bedford Community Health Foundation, Inc.
- Bridging the Gap Scholarship Program
- Business and Professional Women's Foundation
- Central Fidelity Bank Scholarship Program
- Chesapeake Corporation Foundation
- City of Roanoke Redevelopment and Housing Authority
- Continental Societies Scholarship Program
- Cooper Wood Products Foundation, Inc.
- Cox Cable Roanoke
- Daughters of the American Revolution
- Elks National Foundation
- Government and Business PC Users Group
- John W. Hancock Scholarship Program
- Harry T. Layman Scholarship Program
- HCA Lewis-Gale Hospital
- Lewis-Gale Foundation
- McFarland Scholarship Program
- 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
- Roadway Package System Scholarship Program
- Roanoke Academy of Medicine Auxiliary

- Roanoke Memorial Hospitals
- Salem Educational Foundation
- Laura K. Schowe American Sign Language Scholarship Program
- Virginia Dental Association
- Virginia Dental Hygienists' Association, Inc.
- Virginia League for Nursing
- Alice Becker Hinchcliffe Williams Scholarship Program

**FEDERAL 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.

**UNSUBSIDIZED STAFFORD LOAN PROGRAM** - similar to the Federal Stafford Loan Program, except that demonstration of financial need is not required. Meanwhile, the student must pay or capitalize interest while enrolled in school.

**FEDERAL PLUS LOANS** - the Federal PLUS Program is designed to assist the parent or legal guardian of a dependent student whose educational expenses exceed other financial resources. 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. 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.

**FEDERAL 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, SW, Roanoke, VA 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.

### **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, Fishburn Hall, Room 005, 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.

## **FREQUENTLY ASKED QUESTIONS....AND ANSWERS**

**How can I obtain financial aid?** An application may be obtained from the Financial Aid Office located on the ground floor of Fishburn Hall. Students can obtain assistance in completing the form. The form must be submitted to the processing center for approval. Additional documentation, such as tax forms, may be required to complete the application process. It is advisable to apply as early as possible. (Students who apply late for financial aid may have to pay their own expenses and, if approved, obtain reimbursement.)

**When are Pell Checks ready?** First, federal funds must be ordered once Student Aid Reports have been processed and authorization is provided by the U.S. Department of Education. Usually the initial disbursement is two weeks after the drop/add period. Subsequent disbursements are made throughout the term.

**When can Pell students obtain books?** Textbooks and supplies can be charged to the student's Pell award beginning on the second day of classes and continuing through the drop/add period, once the student has obtained at least one instructor's signature verifying class attendance.

## **ACADEMIC SUPPORT SERVICES**

### **Counseling Services**

Potential students and newly enrolled students should contact the Counseling Office, located in Fishburn Hall, for admission and registration information and 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 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. Individual and group counseling is provided to students seeking assistance with educational, career, or personal problems.

### **Career Services and Transfer Services**

The Career Services Office, located in the Student Center, maintains information 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 office also serves as an employment referral service and maintains listings of full and part-time positions available to students.

The counseling staff provides individual assessments of interests, abilities, and vocational personality.

The Transfer Services Office, also located in the Student Center, maintains catalogs, transfer guides, and applications for students interested in planning to transfer to other colleges.

### **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, economic background, or 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 Persons with Disabilities**

Persons with a 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.

Applicants with disabilities 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-105 and the phone number is 857-7286. The TDD number is (540) 857-7918. The Section 504 Coordinator is also located in T105 and the phone number is 857-7286 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 and intellectual abilities through organized co-curricular activities. The Student Activities Office, located in the Student Center, coordinates social, cultural, educational, and recreational programs to enrich campus life. Music and dance performances, art exhibitions, lectures, plays, dances, and team sports 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 newsletter, 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.

## **Student Health Services**

Since Virginia Western is a nonresidential college, no health services are provided. Students are encouraged to attend to their own personal well-being by following good health and safety practices. Information on a student accident and sickness healthcare plan may be obtained in the Student Activities Office. In the event of a medical emergency, first aid kits and trained personnel are available for assistance in most buildings on campus.

## **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 student has either paid for the item or returned the item and paid the fine.

## **Learning Center**

The Learning Center, located on the ground floor of Brown, 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. 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 are available for use by students and the community. The Learning 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 Learning Center.

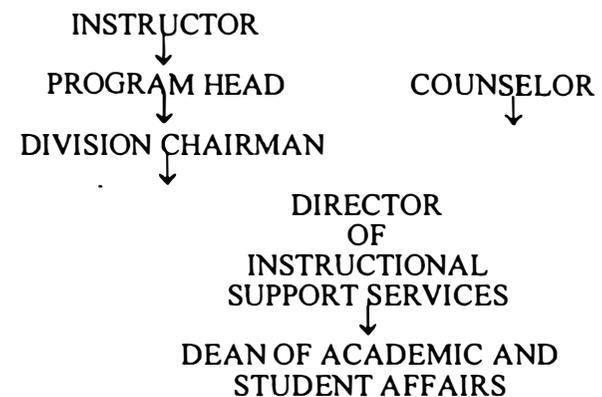
## **Channels of Communication for Academic Complaints, Suggestions, Appeals, and Grievances**

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.

**A complete statement of student rights, responsibilities, and conduct is included in the Student Handbook.**

## **Policies and Procedures Relating to Sexual Misconduct**

Sexual misconduct is a violation of the values and behavioral expectations of the college and will not be tolerated. All reported violations within the jurisdiction of the college, including sexual assault and harassment, will be investigated and, as warranted, will be resolved through appropriate college disciplinary processes and/or criminal proceedings in accordance with applicable state and federal laws.

### **Sexual Assault**

Sexual assault consists of physical contact of a sexual nature without consent. A specific definition of what constitutes unauthorized sexual contact is published in the faculty handbook and is also available upon request from the Counseling Office or Campus Police.

### **Sexual Harassment**

Sexual harassment consists of unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct or written communication of a sexual nature which is intimidating, hostile or offensive. Sexual harassment shall be considered to have occurred when the following circumstances are presented:

1. Toleration of the conduct is an implicit or explicit term or condition of admission or status;
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.

### **Reporting Procedures**

Students who believe that they have been subjected to sexual assault or harassment by another student should take their complaints to the Title IX Coordinator located in Fishburn Hall 018B, telephone 857-6067. Students' allegations involving college employees may be reported to the appropriate supervisor, the Human Resources Manager, Fishburn Hall 204, telephone number 857-7282 or the Title IX Coordinator.

Existing disciplinary and grievance procedures or informal proceedings, as appropriate, shall serve as the framework for resolving allegations of sexual misconduct. Students found guilty of sexual misconduct will be subject to campus disciplinary penalties ranging from probation to expulsion, and, in addition, criminal prosecution in the event of violations of applicable laws. College employees found guilty of sexual misconduct will be subject to disciplinary action as specified by personnel policies.

The rights of both the accused and the complainant shall be protected, and the complainant's sexual history will be excluded in campus proceedings. The

confidentiality of proceedings will be maintained to the fullest extent possible.

### **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.

### **Policy on Firearms**

Possession, storage, or firing of firearms and weapons on College property is prohibited.

### **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.

Handicapped Parking is provided near each building. The College requires persons utilizing handicapped parking spaces to display an authorized permit from the State Division of Motor Vehicles (DMV).

### FASTEST GROWING OCCUPATIONS 1994-2005

(Number in thousands)

<u>Occupation</u>	<u>1994</u>	<u>2005</u>	<u>Numerical</u>	<u>Percent</u>
Personal and home care aides	179	391	212	119
Home health aides	420	848	428	102
Systems analysis	483	928	445	92
Computer engineers	195	372	177	90
Physical/corrective therapy assistants & aides	78	142	64	83
Electronic pagination systems workers	18	33	15	83
Occupational therapy assistants and aides	16	29	13	82
Physical therapists	102	183	81	80
Residential counselors	165	290	126	76
Human services workers	168	293	125	75
Occupational therapists	54	93	39	72
Manicurists	38	64	26	69
Medical assistants	206	327	121	59
Paralegals	110	175	64	58
Medical records technicians	81	126	45	56
Special education teachers	388	593	206	53
Amusement and recreation attendants	267	406	139	52
Correctional officers	310	468	158	51
Operations research analysts	44	67	22	50
Guards	867	1,282	415	48
Speech-language pathologists & audiologists	85	125	39	46
Private detectives and investigators	55	79	24	44
Surgical technologists	46	65	19	43
Dental hygienists	127	180	53	42
Dental assistants	190	269	79	42
Adjustment clerks	373	521	148	40
Teachers aides and educational assistants	932	1,296	364	39
Data processing equipment repairers	75	104	29	38
Nursery and greenhouse managers	19	26	7	37
Securities and financial services sales rep.	246	335	90	37

(Source: Bureau of Labor Statistics Home Page)

## 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 approval. The Coordinator of Admissions Policies and Programs, who serves as designee to the Dean of Academic and Student Affairs, must approve the following:

- 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 a counselor if they have demonstrated ability to handle the 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
- I Incomplete - No credit. Used for unusual circumstances at the discretion of the instructor. Since the "incomplete" extends enrollment in the course, requirements and deadlines 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 non-developmental studies courses, noncredit courses, orientation, and specialized courses and seminars at the discretion of the College. Up to seven (7) 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.
- S Satisfactory - No grade point credit; used only for satisfactory completion of a developmental studies course (numbered 01-09).
- R Re-Enroll - No credit. The student is making progress but the course objectives have not been completed; to be used only for developmental studies courses (numbered 01-09). Re-enrollment for the completion of course objectives may be required.
- U Unsatisfactory - No credit. The student has not made satisfactory progress. Applies only to developmental studies courses (numbered 01-09), noncredit courses, orientation, specialized courses, and seminars at the discretion of the College.
- 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 in the General Catalog and 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 Admissions Office 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, S, 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 must be documented and approved by the Division Chairman and the Dean of Academic and Student Affairs or his designee. Courses taken prior to summer 1990 and withdrawals are exempt from the repeat course policy.

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 indicated on the student's permanent record card, but only the last grade earned is used in calculating the student's cumulative grade point average. This policy applies only to courses taken since Summer 1994, and also to courses taken since the conversion to the semester system (Summer 1988) and repeated since Fall 1996. For further information regarding this policy change and how it may affect students, contact the Records Office.

### **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. Frequent 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 due to absence. If a student cannot take a test or 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. 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.

### **High School 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.

### **Transcripts from Other Colleges**

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, and (2) 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.

### **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 attended a VCCS community college for a minimum of 30 semester hours may be eligible for graduation honors. Associate degree and Certificate completers are eligible for graduation honors, however, Career Studies completers are not 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)

**HONOR SOCIETY - Phi Eta** is Virginia Western's local chapter of Phi Theta Kappa, an international honor society which recognizes and encourages scholarship among two-year college students. It provides opportunity for the development of leadership and service, for an intellectual climate for exchange of ideas and ideals, for lively fellowship for scholars, and for stimulation of interest in continuing academic excellence. Invitations to join are extended to full and part-time associate degree students who display academic excellence. Full-time degree students who have completed 12 credits must have a grade point average of 3.5 or better and part-time degree students must have earned 12 or more credit hours and have a 3.5 average or better. Invitations are usually extended in January.

### **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 Academic and Student Affairs or his designee. 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 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.

### **Suspension for Lack of Progress**

Two or more consecutive terms of withdrawal from all classes without successful completion of any credit courses may subject a student to academic probation and/or suspension.

### **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.

### **Catalog Year for Graduation**

Effective Fall 1992, all students must graduate under a semester catalog. Students who maintain continuous enrollment under the semester system may elect to graduate under their first semester catalog or the current catalog. Students who do not maintain continuous enrollment (i.e., nonenrolled for two or more consecutive semesters) must graduate under the catalog year of re-enrollment or the current catalog.

## TRANSFER INFORMATION

### Transfer Degree Programs

The Associate in Arts (AA) and Associate in Science (AS) degree programs are specifically designed for students who want to transfer to a senior institution (four-year college or university). Programs are offered in Business Administration, Computer Science, Education, Engineering, Fine Arts, General Studies, Health Sciences, Liberal Arts, and Science. Academic counselors are available to help students choose the program which will best prepare them for the type of degree they eventually want to earn at the baccalaureate level. Most four-year colleges and universities in Virginia encourage community college transfer students to complete their degree before transferring. When reviewing admission applications from transfer students, some institutions give admissions priority to students who have completed their degree. All of the public four-year colleges in Virginia have agreed that the general education courses completed by AA and AS degree graduates will be accepted as the equivalent of the general education courses that are required of their freshmen and sophomores.

### Occupational Technical Degree Programs

Although the Associate in Applied Science (AAS) occupational technical degree programs are designed for students who want to enter directly into the job market, some of these programs can also be used to prepare a student for transfer to a four-year college or university. Radford University, for example, offers bachelor degree programs on Virginia Western's campus in Social Work, Media Studies, Nursing, Accounting, Organizational Business Management, and Criminology for Virginia Western students who have completed relevant AAS degree programs. Old Dominion University offers bachelor degree programs in Engineering Technology on Virginia Western's campus for Virginia Western graduates who have completed AAS degree programs in engineering technology.

### Transfer Courses

Virginia Western courses, which are designed for transfer, are readily accepted by senior colleges. Transfer Guides have been prepared by all senior institutions in Virginia. The guides provide detailed listings of which courses will transfer from Virginia Western and other community colleges. The guides also identify the equivalent courses at the senior

institution for which credit will be given. Transfer Guides can be obtained by contacting the senior institution. Copies of Transfer Guides are also available for review in Virginia Western's Transfer Center.

### Transfer Module

Most students will find that it is in their best interest to graduate from Virginia Western before transferring to a senior institution. If a student does not plan to transfer before graduation and has not decided on a transfer institution, the student is encouraged to complete a Transfer Module before transferring. A Transfer Module is a package of courses, which all senior public institutions in Virginia have agreed to accept as complete or partial fulfillment of their general education requirements. A list of the courses included in the Transfer Module is available in the Transfer Center.

### Articulation Agreements

Some of Virginia Western's articulation agreements with senior institutions **guarantee admission** to Virginia Western graduates.

Virginia Tech guarantees admission to the College of Engineering to any student who completes Virginia Western's AS degree in Engineering with a GPA of 3.0 or higher.

Radford University guarantees admission into their upper division nursing degree program to students who complete Virginia Western's AS degree in Health Sciences with a GPA of 3.2 or higher.

Ferrum College, Old Dominion University, Virginia Commonwealth University and Virginia State University are under articulation agreements, students can apply and be guaranteed admission at the junior level provided they complete an Associate in Arts or Associate in Science degree program at Virginia Western with a GPA of 2.0 or higher.

Hollins College students can apply and be guaranteed admission at the junior level provided they complete an Associate in Arts or Associate in Science degree program at Virginia Western with a GPA of 2.5 or higher.

Roanoke College students can apply and be guaranteed admission at the junior level provided they complete an Associate in Arts or Associate in Science degree program at Virginia Western with a GPA of 2.2 or higher.

## PROGRAMS OF STUDY AND GRADUATION REQUIREMENTS

### Degrees and Certificates

The College offers the following degrees, 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 60 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.

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

**Associate in Science Degree (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.

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

2. **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.
3. **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  
Health Sciences

#### **Associate in Applied Science (AAS)**

Accounting  
Administration of Justice  
Career Track  
Transfer Track  
Administrative Support Technology  
Administrative Assistant  
Legal Secretary  
Medical Secretary  
Commercial Art  
Construction Technology  
Dental Hygiene  
Early Childhood Development  
Electrical/Electronics Engineering Technology  
Horticulture Technology  
Interior Landscaping/Floriculture Option  
Landscape Option  
Information Systems Technology  
Legal Assisting  
Management  
Banking and Finance  
Merchandising  
Real Estate  
Mechanical Engineering Technology  
Mental Health  
Clinical Track  
Transfer Track  
Nursing  
Radio and Television Production  
Radiography  
Railroad Operations

#### **Certificate Programs**

Air Conditioning and Refrigeration  
Architectural Drafting  
Child Care  
Clerical Studies  
Medical Transcriptionist  
Welding

#### **Career Studies Programs**

Acting  
Air Conditioning and Refrigeration  
Architectural Drafting  
Building Construction Trades  
Business Industrial Supervision  
Civil Technology/Surveying  
Early Childhood Development  
Education Secretary  
Electrical Wiring  
Electronic Servicing  
Firefighting and Prevention  
Floral Design and Indoor Plant Care  
Food Service Management  
Health Technology  
Industrial Technology  
Landscaping and Outdoor Plant Care  
Microcomputer Studies  
Occupational Safety  
Office Technology  
Plant Propagation and Production  
Real Estate  
Sign Language

## **Graduation Requirements**

The college shall ensure that students who receive associate degrees, 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:

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

**Certificate.** To be eligible for graduation with 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 Records Office;
- 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.

## **Participation in Commencement**

All graduating students are expected to participate in the annual commencement ceremony held at the end of the spring semester. Students who wish to be excused from commencement must submit a written request to the college president stating the reason why they will be unable to attend.

## **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.

## **General Education**

The importance of providing every graduate with a strong background in general education is reflected in both the structure and content of the associate degree programs at Virginia Western Community College. Programs typically devote twenty-five percent or more of the credits required for graduation to the study of general education courses, including at least one course from each of the following areas: humanities/fine arts, social/behavior sciences, natural sciences/mathematics, and health/physical education. These general education courses, together with specialized courses in the major field, orientation sessions, and extracurricular activities, are designed to provide each graduate with a collegiate experience which supports the development of the following general education goals:

**Communication:** Proficiency in the areas of listening, speaking, reading, and writing.

**Learning Skills:** Skills to locate and use information resources; ability to apply methods of inquiry; attitudes which support life-long learning.

**Critical Thinking:** The ability to evaluate and analyze information, events, and problems; skills in developing interpretations, inductive and deductive generalizations, causal explanations, and conclusions.

**Interpersonal Skills and Human Relations:** Knowledge of self; understanding of ethics, social responsibilities, and personal values; skills to recognize different perspectives and cultural values; skills to interact effectively with others; skills and attitudes that promote success in life.

**Computational and Computer Skills:** Skills to understand and interpret numerical data; skills to manipulate data in a logical way; knowledge of basic computer elements, functions, and applications.

**Understanding Culture and Society:** Attitudes and values which promote citizenship; knowledge of social, economic, and political institutions; historical consciousness and a global perspective; awareness and appreciation for artistic forms of expression.

**Understanding Science and Technology:** Knowledge of fundamental principles of science and technology; ability to make reasoned judgments based on these principles; awareness of impact of science and technology on society.

**Wellness:** Attitudes, values, and skills which promote life-long physical and emotional well-being.

**Computer Literacy**

The world is a rapidly changing community requiring basic knowledge of the computer in every day life. Today's technologies require computer applications in education, business, and industry. If our society is to function effectively in such an environment, it behooves us to have a working knowledge of computers and computer applications. Virginia Western Community College has endorsed the principle of computer literacy for all students. Effective with the 1992 fall semester, all new associate degree students must demonstrate proficiency in the following competencies of computer literacy prior to graduation:

- A. the ability to understand the use of a computer.
- B. a working knowledge of computer hardware and technology.
- C. the ability to discriminate between problems that can and problems that cannot be appropriately solved on a computer.
- D. a reasonable proficiency in the understanding of computer software usage.
- E. the ability to use the computer for accomplishing educational and career tasks.

To fulfill the graduation requirement for computer literacy, a student must successfully complete one of the following options:

- A. Complete one of the courses below, at least one is included as a requirement in every associate degree program at Virginia Western:

ACC 215  
 AST 114, 141, 236, 238, 243, 253  
 CSC 201  
 DRF 201  
 EGR 100, 120, 125, 127  
 IST 113, 117, 199  
 MTH 241  
 RAD 245

- B. Request approval from the division chair to waive the course requirement cited above on the basis of previous computer experience. If waiver is granted, no credits are awarded and the student must complete the total number of credits required for graduation in the program.
- C. Obtain approval from the division chair to substitute a course for one of the required courses shown above. The course being substituted must include computer applications and use as part of the course requirements.

**Program Competencies**

The *AS and AA degree programs* are designed for students who plan to transfer to a four-year college or university baccalaureate degree. Upon completion of an AA or AS program, the graduate should have:

1. a broad general education knowledge and skills required of all associate degree students at Virginia Western.

2. computer literacy competencies required of all associate degree students at Virginia Western.
3. the educational knowledge and skills resulting from completing a core of major courses which will provide support for the student's transfer goals.
4. the course work needed to transfer, as an upper-level student, to a four-year college or university with little or no loss of credit.
5. the academic background and study skills needed to succeed after transferring to a baccalaureate degree program.

The *AAS degree programs* are designed to prepare students for direct entry into the job market in technical and paraprofessional fields. A few of the programs also prepare students to transfer to selected baccalaureate degree programs. Upon completion of an AAS degree program, the graduate should have:

1. a broad general education skills and knowledge required of all associate degree students at Virginia Western.
2. computer literacy competencies required of all associate degree students at Virginia Western.
3. the educational background and occupational training necessary for immediate employment.
4. the skills and knowledge needed to perform satisfactorily on the job.
5. the course work necessary to transfer to and succeed in baccalaureate degree programs which accept transfer students from technical degree programs.

The *certificate programs* are designed to prepare students for direct entry into the job market as technicians, skilled, and semi-skilled workers. Upon completion of a certificate program, the graduate should have:

1. a minimal background in general education.
2. the educational background and occupational training necessary for immediate employment.
3. the skills and knowledge needed to perform satisfactorily on the job

The *career studies programs* are designed to prepare students for direct entry into the job market in occupational fields which require minimal entry-level skills and knowledge. Some of the programs also provide persons already employed with an opportunity to upgrade their skills and knowledge. Upon completion of a career studies program, the graduate should have:

1. minimal entry-level skills and knowledge needed for immediate employment in selected fields.
2. the skills and knowledge needed to perform satisfactorily on the job.
3. up-to-date knowledge and skills in a designated occupational area.

## TOP TEN REASONS FOR ATTENDING VIRGINIA WESTERN COMMUNITY COLLEGE

1. **Teaching is the Top Priority:** Faculty at comprehensive four-year colleges and universities often are heavily involved in research and many classes are taught by graduate students. But at Virginia Western, all full-time faculty are professional college teachers. Except for some who teach specialized technical courses, all Virginia Western Faculty have a master's degree or doctorate in their teaching field. Adjunct (part-time) instructors are also fully qualified, and many adjunct faculty bring a wealth of practical experience to the classroom.
2. **Personal Attention:** The college's commitment to teaching is also reflected in the average class size of approximately 20 students. At Virginia Western, there are no large classes taught in lecture halls. Students receive personal attention during and outside of class. Graduates consistently give faculty high marks for their attitude toward students and the quality of instruction.
3. **Less Expensive:** The average cost of attending a public liberal arts college or university in Virginia is \$3,800 per year for tuition and fees, plus an additional \$4,000 for room and board. (Tuition at private colleges averages about \$10,000 per year.) By comparison, tuition and fees for a full-time student at Virginia Western averages just \$1,500 per year. Thus, attending Virginia Western for the first two years of college can result in a savings of over \$12,000.
4. **Convenient Location:** Area residents do not have to leave their family and job to go to college. If they choose to, they can live at home and continue working while attending Virginia Western. The campus is easily accessible to residents throughout the Roanoke area.
5. **Flexible Class Scheduling:** Students in most programs of study at Virginia Western can attend evening or day classes, based on their personal preference, family responsibilities and work schedule. Students can enroll on a full-time basis and earn an associate degree in two years, or attend part-time and advance at their own pace.
6. **Excellent Facilities:** Classrooms and laboratories are well-maintained and equipped with state of the art technology. Satellite receivers and fiber optic cable link Virginia Western classrooms and computer labs to a network of resources both within and beyond the campus. The college's library has extensive holdings and is fully automated. Elevators, ramps and other accommodations provide access to persons with physical disabilities. Abundant, well-lighted parking is provided and campus security personnel are available around-the-clock for assistance.
7. **Student Support Services:** In order to help students establish and achieve their goals, personal assistance is provided by a staff of full-time counselors. Individual and group counseling is offered to students seeking help with educational, career or personal needs. To provide a well-rounded college experience, the Student Activities Office sponsors a variety of student organizations, co-curricular programs and special events. In addition, the Knisely Learning Center serves as a place for students to obtain individual attention for their academic needs. As a supplement to regular classroom instruction, the Learning Center provides tutoring, computer-aided instruction, audio/visual programs and other helpful resources. Special assistance for students with disabilities is also available.
8. **Smooth Transfer of Credits:** Because Virginia Western is fully accredited by the Southern Association of Colleges and Schools (SACS), credits earned in courses designed for transfer are readily accepted by other institutions. Statewide transfer agreements between the Virginia Community College System and four-year colleges and universities, plus individual arrangements with specific institutions, enable Virginia Western students to complete at least the first two years of study toward a bachelor's degree. Feedback from four-year institutions consistently indicates that Virginia Western graduates are well-prepared for transfer: typically over 90% are reported to be in good standing, having experienced little if any drop in their grade point average.
9. **Employment Potential:** A college education is becoming increasingly valuable to compete in the job market. Graduates of Virginia Western's occupational/technical programs have reported excellent employment success. The most recent alumni survey showed over 90% employed either full-time or part-time and nearly 70% working in a program-related field. Employment rates and starting salaries were especially high in health technology, business, and engineering technology fields.
10. **Open Access:** All persons with the desire and ability to benefit from college are welcome at Virginia Western. Upon admission to the college, each academic program requires a minimum level of proficiency in English and mathematics; however, preparatory courses and academic support services are provided to student who lack the necessary foundation for success. At the other end of the continuum, an honors program is available for academically gifted students. Most classes consist of a broad range of students, reflecting the diverse population of the community.

**TABLE 5-1**  
**Minimum Requirements for Associate Degrees**

		<b>Minimum Number of Semester Hour Credits</b>			
<b>General Education:</b>		(1) AA	(2) AS	(3) AA&S	(4) AAA/AAS
I.	English Composition	6	6	6	3
II.	Humanities/Fine Arts	6	6	6	3
	Foreign Language (Intermediate Level)	6	0	0	0
III.	Social/Behavioral Sciences	12	9 <sup>(b)</sup>	12	6 <sup>(a)</sup>
IV.	Natural Sciences/ Mathematics	8 6	8 6(c)	8 6(c)	0 0 } 3 <sup>(a)</sup>
V.	Wellness	2 <sup>(d)</sup>	2 <sup>(d)</sup>	2 <sup>(d)</sup>	2 <sup>(d)</sup>
<b>Other Requirements for Associate Degrees:</b>					
VI.	Student Development	1	1	1	1
VII.	Major field courses and electives (columns 1-3) Occupational/technical courses (column 4)	13	22	19	47(e)
<b>Total for Degree =</b>		60-63	60-63	60-63	65-69 <sup>(f)</sup>

**Notes:** The VCCS Policy Manual, Section 2-IV-C, defines general education within the VCCS. Accreditation eligibility criteria of the Southern Association of Colleges and Schools (SACS) specify general education requirements and provide additional guidance regarding reading, writing, oral communication, and fundamental mathematical skills. Within the framework of Table 5-1 above, Section 2-IV-C, and SACS criteria, colleges must provide "...means by which students may acquire basic competencies in the use of computers." In addition to meeting the semester hour requirements listed above, each college must develop goal statements which include the eight elements found in the General Education statement in Section 2-IV-C of the VCCS Policy Manual.

- <sup>a</sup> While general education courses other than those designed for transfer may be used to meet portions of these requirements, SACS criteria require that general education courses be general in nature and not "...narrowly focused on those skills, techniques, and procedures peculiar to a particular occupation or profession."
- <sup>b</sup> Only 6 semester hours of social/behavioral sciences are required for engineering majors who plan to transfer to a baccalaureate degree engineering program that requires 6 or fewer hours in this category, provided that the college/university publishes such requirements in its transfer guide.
- <sup>c</sup> Only 3 semester hours of mathematics are required for the General Studies major.
- <sup>d</sup> Health, physical education, or recreation courses which promote physical and emotional well being.
- <sup>e</sup> AAA/AAS degree students should plan to take at least 30 hours in the major; the remaining hours will be appropriate to the major.
- <sup>f</sup> Credit range for programs in the Health Technologies - 65-72 semester hour credits, for nursing the credit range is 65-69 semester hour credits.
- <sup>g</sup> All college-level course prerequisites must be included in the total credits required for each program.

**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 after examining the requirements at the transfer institution.

**Transfer Electives**

**Business Electives**

ACC 211-212  
 IST 117

**General Electives\*\***

CSC 201-202

**Health and Physical Education Electives**

HLT 110  
 PED Courses

**Humanities Electives**

\*ART 101-102  
 \*ENG 241-242, 243-244  
 FRE 101-102, 201-202  
 GER 101-102, 201-202  
 \*HUM 201-202  
 \*MUS 121-122  
 PHI 101-102  
 REL 200  
 REL 210  
 REL 230  
 SPA 101-102, 201-202

**Math Electives**

MTH 157, 175, 176, 177, 178, 271-272, 277, 291

**Science Electives**

BIO 101-102, 215, 256, 277, 285  
 CHM 111-112, 241-242  
 \*GOL 105-106  
 NAS 131-132  
 PHY 201-202, 241-242

**Social Science Electives**

ECO 201-202  
 GEO 200, 210  
 \*HIS 101-102, 121-122  
 \*PLS 211-212  
 PSY 201-202  
 PSY 215  
 PSY 231-232  
 PSY 235  
 \*SOC 201-202  
 SOC 211-212  
 SOC 215  
 SOC 268

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

*\*\*Any of the courses listed on this page can also be used as a General Elective.*

## WHY COMMUNITY COLLEGE STUDENTS SHOULD COMPLETE THEIR ASSOCIATE DEGREE BEFORE TRANSFERRING

### Graduation...

**Increases the probability of acceptance by a four-year college or university.** Many senior institutions give transfer admissions priority to students who have completed an AA or AS degree. Some institutions even guarantee admission to transfer graduates.

**Reduces the possibility of having to take additional general education courses at the senior institution.** State senior institutions grant transfer graduates upper division (junior) class standing and accept the general education courses completed in the associate degree as a package, equivalent to the lower-division general education requirements at the senior institution. Students who transfer without graduating cannot be assured that they have satisfied all of the general education requirements of the senior institution.

**Can improve the likelihood of success.** Assessment data provided by four-year institutions consistently show that most graduates have better success rates than nongraduates.

**Increases opportunities for scholarships.** Graduation is an eligibility requirement for many scholarships.

**Provides significant tuition savings.** The cost of tuition for a full-time student at Virginia Western is about \$1,500. Tuition at a public four-year college in Virginia costs (on average) \$3,800 per year. Tuition at private colleges is substantially higher.

## WHY COMMUNITY COLLEGE STUDENTS SHOULD GRADUATE BEFORE LEAVING COLLEGE TO ENTER THE WORK FORCE

### Graduation...

**Enhances chances for employment or promotion.** Many companies require the associate degree for entry level positions in a business or technical career track.

**Provides a recognized credential.** Certifies academic preparation (documented attainment of specialized knowledge and skills) in a given field. The associate degree is a requirement for some professional licensure/certification examinations.

**Represents completion of a major goal.** Employers often want to see evidence that a potential employee has the determination to finish what he or she starts. It also provides the graduate with a feeling of personal satisfaction.

**Provides a basis for continuing education.** Establishes a foundation for additional education should the student desire to return to college at a later time.

### EDUCATION PAYS

<u>Education Level</u>	<u>Average Annual Earnings</u>
Professional	\$74,560
Doctorate	\$54,904
Master's	\$40,368
Bachelor's	\$32,629
Associate	\$24,398
Some College	\$19,666
H.S. Graduate	\$18,737
Not Finished H.S.	\$12,809

(Source: 1992 Study by U.S. Census Bureau)

### CHANGE IN EMPLOYMENT BY EDUCATION AND TRAINING 1994-2005

#### JOB OPENINGS DUE TO GROWTH AND NET REPLACEMENT

(Numbers in thousands)

<u>Education Category</u>	<u>Number</u>	<u>Percent</u>
Professional	657	1.3
Doctorate	467	.9
Master's	658	1.3
Work Experience + Bachelor's	3,062	6.2
Bachelor's	6,684	13.5
Associate	1,594	3.2

(Source: Bureau of Labor Statistics Home Page)

## ACCOUNTING

**Award:** Associate in Applied Science (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.

**Radford University Bachelor Degree Program:** As a result of an articulation agreement with Radford University, any student who completes the Associate in Applied Science (AAS) degree in Accounting will be granted admission to the Radford University Bachelor of Business Administration (BBA) degree in Accounting offered on the Virginia Western Community College campus in Roanoke. MTH 163 and MTH 271 are required instead of MTH 120 or BUS 125 for students in this transfer program.

**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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
ECO 201	Prin. of Economics I	3	0	3
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 120	Introduction to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>2</b>	<b>17</b>
<b>Second Semester</b>				
ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. of Accounting Lab II	0	2	1
BUS 125	Applied Business Math. (or MTH 271)	3	0	3
ECO 202	Prin. of Economics II	3	0	3
HLT <sup>1</sup> 110	Concepts of Personal and Community Health (or PED Elective)	2	0	2
MKT 100	Principles of Marketing (or BUS 100 or BUS 150)	3	0	3
SPD 105	Oral Communication (or SPD 100)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>2</b>	<b>18</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ACC 221	Intermediate Accounting I	4	0	4
ACC 231	Cost Accounting I	3	0	3
ACC 261	Prin. of Federal Taxation	3	0	3
BUS 225	Applied Business Statistics	3	0	3
BUS 241	Business Law I	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Fourth Semester</b>				
ACC 215	Computerized Accounting	3	0	3
ACC 222	Intermediate Accounting II	4	0	4
AST 205	Business Communications	3	0	3
FIN 215	Financial Management	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Total Minimum Credits for Degree</b>				<b>67</b>

<sup>1</sup>Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup>Elective may be any 100 or above level course outside of major field.

# ACTING

## Award: Career Studies (067)

**Purpose:** The curriculum is designed to introduce students to the professional world of theatre; to provide them with the training that will enable them to compete for jobs in the field of professional/commercial entertainment; to improve their self-confidence, presentation skills, and acting skills; and to offer them selected theatre courses that they may transfer to a four-year college or university for a major in theatre.

**Occupational Objectives:** Although the primary objective of the program is to prepare students for employment in some facet of theatre immediately upon completing the program, students may wish to transfer some of the theatre courses to a four-year college or university.

**Curriculum Admission Guidelines:** Students must meet the general requirements for admission to the college.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
SPD 130	Introduction to the Theatre	3	0	3
SPD 131	Acting I	<u>2</u>	<u>3</u>	<u>3</u>
	Total	5	3	6
<b>Second Semester</b>				
SPD <sup>1</sup> 132	Acting II (includes Master classes)	2	3	3
SPD 111	Voice and Diction I	<u>3</u>	<u>0</u>	<u>3</u>
	Total	5	3	6
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
SPD 233	Rehearsal and Performance	1	4	3
SPD 135	Stage Movement	2	2	3
SPD 136	Theatre Workshop	<u>0</u>	<u>2-4</u>	<u>1-2</u>
	Total	3	8-10	7-8
<b>Fourth Semester</b>				
SPD 234	Rehearsal and Performance	1	4	3
SPD 136	Theatre Workshop	0	2-4	1-2
SPD 249	Stage Make-up	<u>1</u>	<u>1</u>	<u>1</u>
	Total	2	7-9	5-6
<b>Summer Session</b>				
SPD <sup>2</sup> 285	Theatre Apprenticeship/ Internship	0	2-6	1-3
Total Minimum Credits for Certificate				25

<sup>1</sup>Through an association with Barter Theatre and Mill Mountain Theatre, students will have several opportunities for workshops presented by visiting professional actors..

<sup>2</sup>Barter Theatre, Mill Mountain Theatre, and Showtimers Theatre will provide opportunities for theatre apprenticeships and internships.

## ADMINISTRATION OF JUSTICE

**Award:** Associate in Applied Science (400)

**Purpose:** This curriculum program 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 professional degree program in the discipline. Two distinct track requirements are offered so the student can emphasize one or the other purpose as his or her primary goal.

**Occupational Objectives:** Both tracks are designed to aid those seeking careers (or seeking advancement) in:

- Law Enforcement (local, state, federal)
- Private and Public Security
- Law (paralegal, magistrate, prosecution/defense attorney, judge, court services and administration)
- Corrections (jail, prison, community based agencies, probation, parole, rehabilitation program staff)
- Juvenile Justice (casework, detention, counseling services)

**Educational Objectives:** Both tracks are designed to aid those seeking a baccalaureate degree from four-year institutions having programs in Administration of Justice, Criminal Justice, Criminology, Law Enforcement, Police Science, and Public Service. A number of the careers listed under Occupational Objectives require four-year or advanced degrees, thus it is important that each student consult early in college enrollment with the program head concerning career and academic goals. Though both tracks are designed to meet both objectives, the **Career Track** emphasizes occupational objectives, the **Transfer Track** emphasizes educational objectives. Of special note-- though the transfer track is geared for maximum transferability from Virginia Western to any four-year institution, it is specifically focused to meet the requirements of the Radford University program below.

**Radford University Bachelor Degree Program:** Any student who completes the transfer track coursework requirements having "C" grade or above in all courses will be granted admission to the Radford University "Two-Plus-Two" Bachelor of Science degree program in criminal justice. This program is particularly attractive since a maximum of 72 semester-hour credits will transfer to Radford from Virginia Western and the remaining 48 semester-hour credits of Radford courses are offered on the Virginia Western campus; thus both the A.A.S. and B.S. degrees are earned in Roanoke at substantial financial savings.

**Credit for Experience:** Coursework credits may be awarded for criminal justice training and experience.

Articulation agreements with some agencies (such as the Virginia State Police Academy) and individual evaluation will determine the extent of the crediting. If you have such experience (police training, military, security, corrections, etc.) consult with the program head about such crediting.

**Curriculum Admission Guidelines:** Proficiency in high school English for both tracks; Algebra I for the Career Track; Algebra I, Algebra II, and Geometry for the Transfer Track. Developmental courses may be required or recommended for those with deficiencies in English or mathematics.

### CAREER TRACK

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ADJ 100	Survey of Criminal Justice	3	0	3
ADJ 105	The Juvenile Justice System	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
ENG 101	Practical Writing I	3	0	3
HLT 110 <sup>1</sup>	Concepts of Personal and Community Health	2	0	2
IST 117	Intro. to Microcomputer Software	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>18</b>
<b>Second Semester</b>				
ADJ 107	Survey of Criminology	3	0	3
ADJ 227	Constitutional Law for Justice Personnel	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
ENG 102	Practical Writing II	3	0	3
MTH 120	Intro. to Mathematics	3	0	3
PED <sup>1</sup>	Physical Education Elective	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ADJ 130	Introduction to Criminal Law	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
PLS 211	United States Government I	3	0	3
PSY 120	Human Relations	3	0	3
E	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Fourth Semester</b>				
ADJ 120	Introduction to Courts	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
PLS 212	U. S. Government II	3	0	3
E	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Total Minimum Credits for Career Track Degree</b>				<b>65</b>

<sup>1</sup> Veterans will be awarded HLT/PED credit based on military service--contact Admissions Office; criminal justice training/experience may be awarded HLT/PED credit--contact ADJ program head.

NOTE: Selection of electives and/or substitution of courses for requirements must first be approved by ADJ program head before enrolling in courses. Other than English and science courses, courses may be taken in any order.

### TRANSFER TRACK

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ADJ 100	Survey of Criminal Justice	3	0	3
ADJ 105	Juvenile Justice System	3	0	3
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
PED <sup>1</sup>	Physical Education Elective	1	0	1
PLS 211	U.S. Government I	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>
<b>Second Semester</b>				
ADJ 107	Survey of Criminology	3	0	3
ADJ 227	Constitutional Law for Justice Personnel	3	0	3
ENG 112	College Composition II	3	0	3
HLT 110 <sup>1</sup>	Concepts of Personal and Community Health	2	0	2
MTH 157	Elementary Statistics	3	0	3
SOC 201	Intro. to Sociology I	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>

### Second-Year Curriculum

#### Third Semester

ADJ 130	Intro. to Criminal Law	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
ART 100	Art Appreciation (or MUS 121)	3	0	3
PHI 101	Intro. to Philosophy I	3	0	3
E <sup>2</sup>	Science Elective	<u>2</u>	<u>2</u>	<u>4</u>
	<b>Total</b>	<b>15</b>	<b>3</b>	<b>16</b>

#### Fourth Semester

ADJ 120	Introduction to Courts	3	0	3
ADJ	Admin. of Justice Elective	3	0	3
PSY 201	Intro. to Psychology I	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>2</sup>	Science Elective	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>15</b>	<b>3</b>	<b>16</b>

Total Minimum Credits for Transfer Track Degree 66

*ADDITIONALLY--To transfer maximum Virginia Western credits to the Radford University "Two-Plus-Two" degree program, take the following two courses:*

IST 160	Computer Programming: Basic I (or IST 162)	3	0	3
E	Elective	3	0	3

<sup>1</sup> Veterans will be awarded HLT/PED credit based on military service--contact Admissions Office; criminal justice training/experience may be awarded HLT/PED credit--contact ADJ program head.

<sup>2</sup> In Transfer Track, the Radford "Two-Plus-Two" program requires a two-semester sequence of natural science (Biology 101-102 or Chemistry 111-112 or Geology 105-106 or Physics 201-202); ADJ 171-172 transfers to some four-year institutions as their science requirement--check with program head.

Note: Selection of electives and/or substitution of courses for requirements must first be approved by ADJ program head before enrolling in courses. Other than English and science courses, courses may be taken in any order.

## ADMINISTRATIVE SUPPORT TECHNOLOGY

### (Administrative Assistant, Legal, Medical)

**Award:** Associate in Applied Science (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, administrative assistant, legal secretary, medical secretary, stenographer, word processor, 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.

### ADMINISTRATIVE ASSISTANT

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
AST <sup>1</sup> 102	Keyboarding II	3	0	3
AST 113	Keyboarding for Skill & Accuracy	1	0	1
AST 140	Introduction to Windows	1	0	1
ENG 111	College Composition I	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
PSY 120	Human Relations	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Second Semester</b>				
AST 141	Word Processing I (Microsoft Word)	3	0	3
BUS 150	Prin. of Management	3	0	3
BUS 241	Business Law	3	0	3
ECO 201	Principles of Economics I	3	0	3
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
SPD 105	Oral Communication	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>

### Second-Year Curriculum Third Semester

AST 201	Keyboarding III	3	0	3
AST 205	Business Communications	3	0	3
AST 232	Microcomputer Office Applications	3	0	3
AST 238	Advanced Word Processing	3	0	3
AST 240	Machine Transcription	3	0	3
AST 243	Office Administration I	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>18</b>

### Fourth Semester

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
AST 236	Specialized Software Applications	3	0	3
AST 244	Office Administration II	3	0	3
AST 253	Advanced Desktop Publishing I (Pagemaker)	3	0	3
E <sup>3</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>2</b>	<b>16</b>

Total Minimum Credits for Degree 66

<sup>1</sup> Prerequisite: AST 101, Credit by Exam, or High School Typing Certificate and knowledge of WordPerfect.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>3</sup> Elective may be any 100 or above level course.

### LEGAL SECRETARY

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
AST <sup>1</sup> 102	Keyboarding II	3	0	3
AST 113	Keyboarding for Skill and Accuracy	1	0	1
AST 140	Introduction to Windows	1	0	1
ENG 111	College Composition I	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
PSY 120	Human Relations	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Second Semester</b>				
AST 141	Word Processing I (Microsoft Word)	3	0	3
BUS 150	Principles of Management	3	0	3
BUS 241	Business Law	3	0	3
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
LGL 110	Intro. to Law and the Legal Assistant	3	0	3
SPD 105	Oral Communications	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>

**Second-Year Curriculum**

**Third Semester**

AST 205	Business Communications	3	0	3
AST 213	Legal Keyboarding	3	0	3
AST 232	Microcomputer Office Applications	3	0	3
AST 238	Advanced Word Processing	3	0	3
AST 247	Legal Machine Transcription	3	0	3
AST 265	Legal Office Procedures I	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>18</b>

**Fourth Semester**

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
AST 266	Legal Office Procedures II	3	0	3
ECO 201	Principles of Economics I	3	0	3
LGL 125	Legal Research	3	0	3
E <sup>3</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>2</b>	<b>16</b>

Total Minimum Credits for Degree 66

<sup>1</sup> Prerequisite: AST 101, Credit by Exam, or High School Typing Certification and knowledge of WordPerfect.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>3</sup> Elective may be any 100 or above level course.

**MEDICAL SECRETARY**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**First-Year Curriculum**

**First Semester**

AST <sup>1</sup> 102	Keyboarding II	3	0	3
AST 113	Keyboarding for Skill and Accuracy	1	0	1
AST 140	Introduction to Windows	1	0	1
ENG 111	College Composition I	3	0	3
MTH 120	Introduction to Mathematics (or MTH 163)	3	0	3
HLT 143	Medical Terminology I	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>

**Second Semester**

AST 141	Word Processing I (Microsoft Word)	3	0	3
BUS 150	Principles of Management	3	0	3
BUS 241	Business Law	3	0	3
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
HLT 144	Medical Terminology II	3	0	3
SPD 105	Oral Communication	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>

**Second-Year Curriculum**

**Third Semester**

AST 205	Business Communications	3	0	3
AST 215	Medical Keyboarding	3	0	3
AST 232	Microcomputer Office Applications	3	0	3
AST 238	Advanced Word Processing	3	0	3
AST 245	Medical Machine Transcription	3	0	3
AST 271	Medical Office Procedures I	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>18</b>

**Fourth Semester**

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
AST 272	Medical Office Procedures II	3	0	3
ECO 201	Principles of Economics I	3	0	3
PSY 120	Human Relations	3	0	3
E <sup>3</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>2</b>	<b>16</b>

Total Minimum Credits for Degree 66

<sup>1</sup> Prerequisite: AST 101, Credit by Exam, or High School Typing Certification and knowledge of WordPerfect.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>3</sup> Elective may be any 100 or above level course.

## AIR CONDITIONING AND REFRIGERATION

**Award:** 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.

The program also prepares the student to take the EPA Section 608 Certification test, which is now required of all people employed in the installation, maintenance and repair of air conditioning and refrigeration equipment. This certification test is given on campus during the student's first year of studies.

**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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
AIR 121	Air Conditioning and Refrigeration I	2	2	3
ELE 133	Practical Electricity I	2	2	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	Total	5	4	7
<b>Second Semester</b>				
AIR 122	Air Conditioning and Refrigeration II	2	2	3
ELE 134	Practical Electricity II	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
AIR 123	Air Conditioning and Refrigeration III	2	2	3
BLD <sup>1</sup> 111	Blueprint Reading & the Building Code	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>Fourth Semester</b>				
AIR 124	Air Conditioning and Refrigeration IV	2	2	3
WEL 120	Fundamentals of Welding	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER:</b>				
BUS 165	Small Business Management	3	0	3
ENG 101	Practical Writing I	3	0	3
E	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
Total Minimum Credits for Certificate				33

<sup>1</sup> BLD 295 (Mechanical Code) may be substituted for BLD 111.

## AIR CONDITIONING AND REFRIGERATION

**Award:** 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.

The program also prepares the student to take the EPA Section 608 Certification test, which is now required of all people employed in the installation, maintenance and repair of air conditioning and refrigeration equipment. This certification test is given on campus during the student's first year of studies.

**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 deficiencies in English and mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### First-Year Curriculum First Semester

AIR	121	Air Conditioning and Refrigeration I	2	2	3
ELE	133	Practical Electricity I	<u>2</u>	<u>2</u>	<u>3</u>
Total			4	4	6

### Second Semester

AIR	122	Air Conditioning and Refrigeration II	2	2	3
ELE	134	Practical Electricity II	<u>2</u>	<u>2</u>	<u>3</u>
Total			4	4	6

### Second-Year Curriculum Third Semester

AIR	123	Air Conditioning and Refrigeration III	2	2	3
BLD <sup>1</sup>	111	Blueprint Reading & the Building Code	<u>2</u>	<u>2</u>	<u>3</u>
Total			4	4	6

### Fourth Semester

AIR	124	Air Conditioning and Refrigeration IV	2	2	3
WEL	120	Fundamentals of Welding	<u>2</u>	<u>2</u>	<u>3</u>
Total			4	4	6

Total Minimum Credits for Certificate 24

<sup>1</sup> BLD 295 (Mechanical Code) may be substituted for BLD 111.

## ARCHITECTURAL DRAFTING

**Award:** 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.

**Occupational Objectives:** Entry-level positions in the drafting field.

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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### First-Year Curriculum First Semester

ARC	111	Intro. to Architectural Drafting I	1	6	3
CIV	130	Construction Planning	<u>3</u>	<u>0</u>	<u>3</u>
Total			4	6	6

### Second Semester

ARC	112	Intro. to Architectural Drafting II	1	6	3
ARC	130	Intro. to Materials and Methods of Construction	<u>4</u>	<u>0</u>	<u>4</u>
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	<u>1</u>	<u>3</u>	<u>2</u>
Total			2	7	5

### Fourth Semester

ARC	234	Advanced Architectural Drafting IV	1	4	3
E <sup>1</sup>		Approved Technical Elective	<u>2-3</u>	<u>0</u>	<u>5-6</u>
Total			3-4	4	5-6

Total Minimum Credits for Certificate 23

<sup>1</sup> Technical elective to be selected with departmental approval and may be taken any semester.

**ARCHITECTURAL DRAFTING™****Award:** 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 mathematics (1 unit of Algebra). Developmental courses may be recommended for students with deficiencies in English and mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ARC 111	Intro. to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	Total	5	6	7
<b>Second Semester</b>				
ARC 112	Intro. to Architectural Drafting II	1	6	3
ARC 130	Intro. to Materials and Methods of Construction	<u>4</u>	<u>0</u>	<u>4</u>
	Total	5	6	7
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ARC 233	Advanced Architectural Drafting III	1	4	3
DRF 201	Computer Aided Drafting and Design I	<u>1</u>	<u>3</u>	<u>2</u>
	Total	2	7	5
<b>Fourth Semester</b>				
ARC 234	Advanced Architectural Drafting IV	1	4	3
E <sup>1</sup>	Approved Technical Elective	<u>2</u>	<u>0</u>	<u>2</u>
	Total	3	4	5
	Additional Required Courses	14	0	14
	Total Minimum Credits for Certificate			38
<b>ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER:</b>				
ENG/SPD	English or Speech	3	0	3
MTH <sup>3</sup> 103	Applied Technical Mathematics I	3	0	3
MTH 105	Survey of Technical Mathematics I	2	0	2
E <sup>2</sup>	Social Science Sequence	<u>6</u>	<u>0</u>	<u>6</u>
	Total	14	0	14

<sup>1</sup> Technical elective to be selected with department approval.

<sup>2</sup> A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

<sup>3</sup> MTH 113 can be taken in lieu of MTH 103-105.

**BUILDING CONSTRUCTION TRADES**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**Award:** Career Studies (066)

**Purpose:** The career studies program in Building Construction Trades is designed to help entry level employees in construction related trades obtain job-specific knowledge and skills to improve their work performance and career status within the industry. The curriculum will provide an understanding of the common principles and practices of the modern construction industry as well as specific knowledge and skills in a trade area selected by the student. At this time, four specializations are available: Electrical, Fire Safety, HVAC, and Plumbing. The courses contained in this program are applicable to fulfilling the related education requirements that are prerequisite to taking the Journeyman or Master certification tests. Information on specific trade certification requirements may be obtained from the National Assessment Institute (NAI), Telephone Toll-Free in Virginia 1-800-356-3381. Classes are scheduled during the evening hours.

**Occupational Objectives:** Journeyman or Master's level tradesman certification in electrical, mechanical and plumbing fields. NICET certified in the fire option.

**Curriculum Admission Guidelines:** Proficiency in high school English and mathematics (MTH 02 or equivalent).

**CORE REQUIREMENTS FOR ALL TRADES**

BLD 111	Blueprint Reading and the Building Code	2	2	3
BLD 136	Building Construction Mathematics	2	0	2
BLD 195	Virginia Contractor Licensing Review	2	0	2
HLT 106	First Aid and Safety	2	0	2
IST 113	Computers and Information Systems	1	0	1
E <sup>1</sup>	English Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>2</b>	<b>13</b>

**ELECTRICAL OPTION**

ELE 133	Practical Electricity I	2	2	3
ELE 134	Practical Electricity II	2	2	3
ELE 138	National Electrical Code	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>6</b>	<b>4</b>	<b>8</b>

Total Credits for Certificate 21

**HVAC OPTION**

AIR 121	Air Conditioning and Refrigeration I	2	2	3
AIR 122	Air Conditioning and Refrigeration II	2	2	3
AIR 123	Air Conditioning and Refrigeration III	2	2	3
BLD 295	Mechanical Code	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>6</b>	<b>12</b>

Total Credits for Certificate 25

**PLUMBING OPTION**

BLD 20	Introduction to Plumbing	1	2	2
BLD 25	Analysis & Troubleshooting in Plumbing	2	2	3
BLD 299	Plumbing Code	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>6</b>	<b>4</b>	<b>8</b>

Total Credits for Certificate 21

**FIRE OPTION**

FIR 211	Automatic Sprinkler System Design I	3	0	3
FIR 212	Automatic Sprinkler System Design II	3	0	3
FIR 215	Fire Suppression and Detection Systems	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>0</b>	<b>9</b>

Total Credits for Certificate 22

<sup>1</sup> English elective should be chosen from the following: ENG 106, ENG 107, ENG 101, ENG 111.

## BUSINESS ADMINISTRATION

**Award:** Associate in Science (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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
HIS 101	History of Western Civilization I (or HIS 121)	3	0	3
MTH 163	Pre-Calculus Math. I (or MTH 175-177)	3-5	0	3-5
STD E <sup>1</sup> 100	Orientation Science Elective	1	0	1
	<b>Total</b>	<u>3</u>	<u>3</u>	<u>4</u>
		13-15	3	14-16
<b>Second Semester</b>				
ENG 112	College Composition II	3	0	3
MTH 271	Applied Calculus I (or MTH 176-178)	3-5	0	3-5
E <sup>1</sup>	Science Elective	3	3	4
E <sup>2</sup>	Elective	<u>3</u>	0	<u>3</u>
	<b>Total</b>	12-14	3	13-15
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
ECO 201	Principles of Economics I	3	0	3
ENG 241	Survey of American Literature (or ENG 243)	3	0	3
HLT <sup>3</sup> 110	Concepts of Personal and Community Health (or PED Elective)	2	0	2
IST 117	Intro. to Microcomputer Software	3	0	3
MTH <sup>2</sup> 241	Statistics I (or Elective)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	17	2	18
<b>Fourth Semester</b>				
ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. of Accounting Lab II	0	2	1
ECO 202	Principles of Economics II	3	0	3
MTH <sup>2</sup> 242	Statistics II (or Elective)	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	15	2	16
<b>Total Minimum Credits for Degree</b>				<b>61</b>

<sup>1</sup> A two-semester sequence of natural science must be chosen from the following: BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202.

<sup>2</sup> Electives may be substituted from the "Approved List of Transfer Electives" on page 31.

<sup>3</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit bases on military service.

**BUSINESS INDUSTRIAL SUPERVISION**

**Award:** 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
BUS 111	Principles of Supervision I	3	0	3
PSY 201	Introduction to Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Second Semester</b>				
BUS 100	Introduction to Business	3	0	3
BUS 205	Human Resource Mgmt.	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Third Semester</b>				
ENG 111	English Composition	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
SAF 126	Prin. of Industrial Safety	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
<b>Total Minimum Credits for Certificate</b>				<b>21</b>

## CHILD CARE

**Award:** 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 development 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, recreation 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. 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 catalog listings Early Childhood Development, A.A.S. Degree, and/or Education. Admission to internship (CHD 165, 265) is contingent upon a satisfactory medical examination. The medical form supplied at the beginning of the fall semester must be returned to the program head no later than September 30.

**Advanced Placement:** Students who have completed a two or three year child care/early childhood development curriculum in an area high school may be awarded credit for CHD 122 and CHD 265 with certain conditions

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
CHD 121	Childhood Educational Development I	3	0	3
CHD 125	Creative Activities for Children	2	2	3
CHD <sup>1</sup> 165	Observation & Participation in Early Childhood Settings	1	6	3
ENG 111	College Composition I (or ENG 101)	3	0	3
HLT <sup>2</sup> 106	First Aid and Safety	2	0	2
PSY 235	Child Psychology	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>15</b>	<b>8</b>	<b>18</b>
<b>Second Semester</b>				
CHD 122	Childhood Educational Dev. II (or CHD 120)	3	0	3
CHD 216	Early Childhood Programs, School, and Social Change	3	0	3
CHD <sup>1</sup> 265	Observation & Participation in Early Childhood Settings	1	6	3
ENG 112	College Composition II (or ENG 102)	3	0	3
HLT 135	Child Health and Nutrition	3	0	3
PSY 120	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>6</b>	<b>18</b>
<b>Total Minimum Credits for Certificate</b>				<b>36</b>

<sup>1</sup>Coordinate with CHD 121 and CHD 122/120.

<sup>2</sup>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.

**CIVIL TECHNOLOGY/SURVEYING**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**Award:** Career Studies (057)

**Purpose:** 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

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

**First-Year Curriculum  
First Semester**

ARC 111	Intro. to Architectural Drafting I	1	6	3
MTH 103	Applied Technical Mathematics I	3	0	3
MTH 105	Survey of Technical Mathematics I	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>6</b>	<b>6</b>	<b>8</b>

**Second Semester**

CIV 171	Surveying I	2	3	3
DRF 201	Computer Aided Drafting & Design I	<u>1</u>	<u>3</u>	<u>2</u>
	<b>Total</b>	<b>3</b>	<b>6</b>	<b>5</b>

**Second-Year Curriculum  
Third Semester**

CIV 172	Surveying II	2	3	3
DRF 202	Computer Aided Drafting & Design II	<u>1</u>	<u>3</u>	<u>2</u>
	<b>Total</b>	<b>3</b>	<b>6</b>	<b>5</b>

**Fourth Semester**

CIV 201	Suburban Development I	2	2	3
CIV 224	Air and Water Resources	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>4</b>	<b>2</b>	<b>5</b>

**Total Credits Required for Career Studies Certificate 23**

## CLERICAL STUDIES

**Award:** 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 and knowledge of WordPerfect, or a satisfactory score (minimum of 35 wpm) on AST 101 credit by exam.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
AST <sup>1</sup> 102	Keyboarding II	3	0	3
AST 113	Keyboarding for Skill and Accuracy	1	0	1
AST 140	Introduction to Windows	1	0	1
AST 141	Word Processing I (Microsoft Word)	3	0	3
AST 243	Office Administration I	3	0	3
ENG 101	Practical Writing I	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	Total	15	0	15
<b>Second Semester</b>				
AST 201	Keyboarding III	3	0	3
AST 238	Advanced Word Processing	3	0	3
AST 240	Machine Transcription	3	0	3
AST 244	Office Administration II	3	0	3
SPD 105	Oral Communications	<u>3</u>	<u>0</u>	<u>3</u>
	Total	15	0	15
Total Minimum Credits for Degree				30

<sup>1</sup> Prerequisite: AST 101, Credit by Exam, or High School Typing Certification and knowledge of WordPerfect.

## COMMERCIAL ART

**Award:** Associate in Applied Science (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. Proficiency in high school English and 1 unit of high school algebra are necessary. Proficiency in keyboarding is strongly recommended. Developmental courses may be recommended for students with deficiencies in English, reading, and/or mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ART 101	History and Appreciation of Art I	3	0	3
ART 121	Drawing I	1	4	3
ART 131	Fundamentals of Design I	1	4	3
ENG 111	College Composition I (or ENG 101)	3	0	3
STD 100	Orientation	1	0	1
E <sup>1</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>8</b>	<b>16</b>
<b>Second Semester</b>				
ART 122	Drawing II	1	4	3
ART 132	Fundamentals of Design II	1	4	3
IST 117	Intro. to Microcomputer Software	3	0	3
PHT 101	Photography I	1	4	3
E <sup>1</sup>	Social Science Elective	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>12</b>	<b>18</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ART 221	Drawing III	1	4	3
ART 241	Painting I (or ART 243)	1	4	3
ART 251	Communication Design I	2	3	3
ART 281	Graphic Techniques I	2	3	3
MTH <sup>3</sup> 120	Intro. to Mathematics	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>14</b>	<b>15</b>
<b>Fourth Semester</b>				
ART 242	Painting II (or ART 244)	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
HLT <sup>4</sup> 110	Concepts of Personal and Community Health (or Physical Education)	2	0	2
SPD 105	Oral Communication (or SPD 100)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>11</b>	<b>14</b>	<b>17</b>
<b>Total Minimum Credits for Degree</b>				<b>66</b>

<sup>1</sup> Social science elective may be chosen from PSY 120, PSY 201-202, ECO 201-202, PLS 211-212, HIS 101-102, HIS 121-122, or SOC 201-202. A two-semester sequence is recommended for transfer.

<sup>2</sup> For students who plan to transfer, it is suggested that English 112 be taken as an elective.

<sup>3</sup> For students who plan to transfer, Math 151 or 163 is recommended.

<sup>4</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**CONSTRUCTION TECHNOLOGY**

**Award:** Associate in Applied Science (725)

**Purpose:** This program is designed to prepare qualified technicians for career opportunities in the architectural, civil engineering technology, and building construction industries. Graduates may seek immediate employment or transfer to Bachelor of Technology programs at certain four-year colleges and universities. The program has two options: architectural technology or civil engineering technology. First-year students take a common core of courses that includes instruction in construction planning, drafting, materials and methods of construction, and surveying. Second-year students will choose a specialization in Architectural Technology or Civil Engineering Technology.

The **Architectural Technology Option** provides in-depth instruction in the planning, design, and preparation of architectural drawings for a variety of projects. This option also includes courses in computer-aided drafting and design, solar energy, structural design, and other topics relevant to the architectural and building construction industries.

The **Civil Engineering Technology Option** includes advanced instruction in surveying and site development. This option also includes courses in computer-aided drafting and design, civil construction materials, structural design, and other topics relevant to the civil engineering and building construction industries.

**Occupational Objectives:** Varied opportunities in architectural and civil engineering offices, with building contractors, land surveyors and with industries related to the construction industry.

**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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>CORE REQUIREMENTS</b>				
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ARC 111	Intro. to Architectural Drafting I	1	6	3
CIV 130	Construction Planning	3	0	3
EGR 100	Engr. Tech. Orientation	0	2	1
ENG 111	College Composition I	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Education Elective	1	0	1
MTH 113	Engr. Tech. Mathematics I	5	0	5
STD 100	Orientation	<u>1</u>	<u>0</u>	1
	<b>Total</b>	<b>14</b>	<b>8</b>	<b>17</b>
<b>Second Semester</b>				
ARC 112	Intro. to Architectural Drafting II	1	6	3
ARC 130	Intro. to Materials and Methods of Construction	4	0	4
CIV 171	Surveying I	2	3	3
MEC 131	Mechanics I - Statics for Engineering Technology	3	0	3
MTH 114	Engr. Tech. Mathematics II	<u>4</u>	<u>0</u>	<u>4</u>
	<b>Total</b>	<b>14</b>	<b>9</b>	<b>17</b>
<b>ARCHITECTURAL TECHNOLOGY SPECIALIZATION</b>				
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ARC 100	Intro. to Architecture	3	0	3
ARC 233	Advanced Architectural Drafting III	1	4	3
DRF 201	Computer Aided Drafting & Design I	1	3	2
MEC 132	Mechanics II - Strength of Materials for Engr. Tech.	3	0	3
SPD 100	Prin. of Public Speaking (or SPD 105)	3	0	3
E <sup>1</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>7</b>	<b>17</b>
<b>Fourth Semester</b>				
ARC 150	Intro. to Solar Industry	3	0	3
ARC 234	Advanced Architectural Drafting IV	1	4	3
ARC 255	Construction Estimating	2	0	2
CIV 210	Design of Structural Systems	4	0	4
DRF 202	Computer Aided Drafting & Design II	1	3	2
HLT/PED <sup>2</sup>	Health or Physical Educ.	1	0	1
E <sup>1</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>7</b>	<b>18</b>
<b>Total Minimum Credits for Degree</b>				<b>69</b>

**CIVIL ENGINEERING TECHNOLOGY  
SPECIALIZATION**

**Second-Year Curriculum**

**Third Semester**

CIV	172	Surveying II	2	3	3
CIV	230	Civil Construction Materials	2	2	3
DRF	201	Computer Aided Drafting & Design I	1	3	2
MEC	132	Mechanics II-Strength of Materials for Eng. Tech.	3	0	3
SPD	100	Principles of Public Speaking (or SPD 105)	3	0	3
E <sup>1</sup>		Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
		<b>Total</b>	<b>14</b>	<b>8</b>	<b>17</b>

**Fourth Semester**

ARC	255	Construction Estimating	2	0	2
CIV	145	Applied Soil Erosion and Sediment Control	2	0	2
CIV	201	Suburban Development I	1	3	2
CIV	210	Design of Structural Systems	4	0	4
CIV	224	Air and Water Resources	2	0	2
DRF	202	Computer Aided Drafting & Design II	1	3	2
HLT/PED <sup>2</sup>		Health or Physical Education	1	0	1
E <sup>1</sup>		Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
		<b>Total</b>	<b>16</b>	<b>6</b>	<b>18</b>

**Total Minimum Credits for Degree 69**

<sup>1</sup> A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

## DENTAL HYGIENE

**Award:** Associate in Applied Science (118)

**Purpose:** The curriculum is designed to prepare students as primary preventive oral health professionals licensed to practice dental hygiene. Upon successful completion of the program, graduates 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 United States Department of Education.

**Occupational Objectives:** A dental hygienist may practice in any of the following settings:

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

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 (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 Priorities:** When admission to certain selective programs must be limited because the number of applicants exceeds available space, priority shall be given to all qualified applicants as follows: (1) residents of the political subdivisions supporting the college, followed by (2) other Virginia residents, (3) residents of

other states, and finally (4) international students with student or diplomatic visas.

**Admission Procedures:** The Dental Hygiene Program is open to qualified male or female applicants. Early application is advisable due to the limited number of positions in the program. Deadline for submitting complete application materials is February 15 for the upcoming academic year. If the number of qualified applicants falls below the maximum enrollment, the application deadline may be extended. 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.

To qualify for consideration by the Dental Hygiene Admissions Committee, the applicant must submit a complete application which includes the following: application to the college, Dental Hygiene Program Application, official transcripts of all high school and college work, official record showing completion of GED, SAT/ACT scores (if applicable as noted above), two letters of recommendation from employers/former teachers, and an essay related to the candidate's reason for making Dental Hygiene their career choice. A personal interview with the Health Technology Information Specialist is required in order for the counselor to complete the Dental Hygiene Admissions Advising Form. Qualified applicants must be interviewed by the Dental Hygiene faculty.

**Essential Dental Hygiene Functions:** To successfully complete the clinical component of the Program, the student must be able to perform all of the essential functions of a dental hygienist:

1. Communicate satisfactorily with clients, physicians, peers, family members and the health care team.
2. See and hear adequately to note slight changes in the client's condition.
3. Hear adequately to perceive and interpret various equipment signals.
4. Demonstrate adequate eye/hand coordination for dexterity in manipulation of hand instruments and other equipment used in clinical practice.
5. Use hands for fine manipulation.
6. Manage the care of a client in a sudden emergency, including one-man CPR when necessary.
7. Possess the visual acuity to correctly read handwritten orders, medication records, chart contents, and provide safety for clients.

Despite the foregoing, a qualified person with a disability who can perform these essential functions with reasonable accommodation will be considered for admission along with other qualified applicants.

**Clinical Environment:** The applicants should realize that student dental hygienists are, by nature of the profession, exposed regularly to highly stressful and demanding situations, difficult clients, and organizational and time pressures in a variety of client care settings. In addition, student and practicing dental

hygienists are routinely exposed to blood and body fluids.

**Student Responsibilities After Acceptance Into the Program:**

1. Admission is contingent upon a satisfactory medical and dental examination indicating good general health. The medical examination must include evidence of a PPD skin test (or chest x-ray), and serology for the Hepatitis B surface antigen and antibody. The Heptavax vaccine is strongly recommended. All documentation must be submitted to the Dental Hygiene Program Head no later than August 1 or the student will be dropped from the program at that time.
2. Current certification in cardiopulmonary resuscitation (CPR) is required for both years of the program. Students are responsible for providing their own malpractice insurance coverage during the two years of the program. All documentation must be submitted to the Dental Hygiene Program Head no later than August 1 or the student will be dropped from the program at that time.
3. All students admitted to the Dental Hygiene Program must attend dental hygiene orientation, register for all classes, and pay their tuition prior to August 1. All students are expected to purchase instruments and uniforms at orientation.
4. Students admitted to the program with academic contingencies in biology, chemistry, or algebra must provide documentation of satisfactory completion of the contingency prior to the beginning of Fall classes. Failure to meet a stated contingency will result in admission being rescinded.
5. All students admitted to the program without prior experience in the dental field (chairside dental assisting) are required to observe dental and dental hygiene procedures in the dental office of their choice. The observation experience must be completed by August 1. Assistance in locating practitioners willing to provide observation experience may be provided in meeting this requirement. Written documentation of this experience is required; forms will be provided by the Dental Hygiene Program upon admission.
6. Students in the program are responsible for transportation to and from agencies utilized for clinical and community health rotation experiences.

**Policy for Academic Retention:**

Continuation in the program: Satisfactory progress is demonstrated by achieving a grade of "C" or better in required Dental Hygiene and Natural Science courses. Students must satisfactorily complete BIO 141, 142, and NAS 185 with a grade of "C" or above before progressing to the second year of the program. Students must complete required Dental Hygiene courses in sequence. Should a student receive a grade of "D" in any dental hygiene didactic course, didactic component of a clinical or laboratory course, or the laboratory component of a preclinical or didactic course, the student will be dropped from the program and must

reapply for admission. Should a student receive a grade of "D" in the clinical component of DNH 142, 190, 244, or 245 due to failure to meet minimum clinical requirements for the semester, the student may progress to the next semester of the program with faculty approval, and will have additional patient requirements for graduation added. Two consecutive D's in these clinical courses may result in the student being dropped from the program.

Readmission to the program will be based upon academic performance, and adherence to program policies regarding attendance and professionalism, and will be contingent upon available laboratory/clinical space. Students who have been dropped from the program must submit a written application for readmission to the program head no later than January 1st for the following fall semester, no later than May 15th for the following spring semester, and no later than August 15th for the following summer session. The Program Head will present the readmission request to the faculty for consideration. Students applying for readmission will be notified of their admission status in writing.

Students readmitted to the program are eligible to repeat a course only once, and a dental hygiene course must be repeated during the semester in which it is offered. The student may not continue with other required dental hygiene courses until the course is repeated. Students earning a grade of "F" in any dental hygiene course will be dropped from the program and are ineligible for readmission unless there are extenuating circumstances (serious illness, death of an immediate family member).

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
BIO 141	Human Anatomy and Physiology I	3	2	4
DNH 111	Oral Anatomy	2	0	2
DNH 115	Histology/Head and Neck Anatomy	3	0	3
DNH 120	Mgmt. of Emergencies	2	0	2
DNH 141	Dental Hygiene I	3	6	5
STD 100	Orientation	1	0	1
	<b>Total</b>	<b>14</b>	<b>8</b>	<b>17</b>
<b>Second Semester</b>				
DNH 130	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
ENG 111	College Composition (or ENG 101)	3	0	3
NAS 185	Microbiology	3	2	4
	<b>Total</b>	<b>12</b>	<b>17</b>	<b>18</b>

**DENTAL HYGIENE CONT'D****Summer Session**

BIO 142	Human Anatomy and Physiology II	3	2	4
DNH 190	Coordinated Practice (variable credit)	2	3	3
DNH <sup>2</sup> 216	Pharmacology	2	0	2
HLT <sup>2</sup> 295	Nutrition	<u>2</u>	<u>0</u>	<u>2</u>
	Total	9	5	11

**Second-Year Curriculum****Third Semester**

DNH <sup>3</sup> 214	Practical Materials for Dental Hygiene	1	2	2
DNH <sup>3</sup> 226	Public Health Dental Hygiene I	2	0	2
DNH 244	Dental Hygiene IV	1	12	5
PSY <sup>1</sup> 201	Intro. to Psychology I	<u>3</u>	<u>0</u>	<u>3</u>
	Total	7	14	12

**Fourth Semester**

DNH 227	Public Health Dental Hygiene II	0	3	1
DNH 230	Office Practice and Ethics	1	0	1
DNH 245	Dental Hygiene V	1	12	5
IST 113	Computers and Information Systems	1	0	1
SOC 201	Introduction to Sociology I (or SOC 215)	3	0	3
SPD 100	Prin. of Public Speaking (or ENG 102)	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	15	14

Total Minimum Credits for Degree 72

<sup>1</sup> PSY 231, PSY 120, or PSY 125 may be substituted.

<sup>2</sup> Health and Wellness are emphasized throughout the Dental Hygiene Program, but specifically in HLT 295 Nutrition.

<sup>3</sup> Includes instruction in fundamental mathematical skills.

**EARLY CHILDHOOD DEVELOPMENT**

**Award:** Career Studies (060)

**Occupational Objectives:** Entry-level positions in child care centers, nursery schools and other child care facilities for pre-school children. The program is designed to provide approved courses for upgrading the education and skills of persons working in early childhood education, in accordance with the Virginia Department of Human Services. The program also serves to introduce inexperienced persons to the field of early childhood development.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
CHD 120	Intro. to Early Childhood Education	3	0	3
CHD 125	Creative Activities for Children	3	2	3
CHD 205	Guiding the Behavior of Young Children	3	0	3
HLT 135	Child Health and Nutrition	3	0	3
PSY 235	Child Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	Total	15	2	15

Total Credits Required for Career Studies Certificate 15

## EARLY CHILDHOOD DEVELOPMENT

**Award:** Associate in Applied Science (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; ability to organize and sustain positive functioning of children and adults in a group learning environment; coordinate home/out-of-home child rearing practices and expectations; and 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. Students who are interested in working with special-needs children should consult with the Early Childhood Development Staff.

**Occupational Objectives:** Positions in independent child-care centers and kindergartens, family day-care homes, nursery schools, foster-care providers, hospital centers, centers for children with special needs, residential child-care facilities and industry associate centers. In addition, this program 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. Satisfactory performance on an appropriate test may be required of those applicants whose records indicate academic weakness in English, reading, or mathematics. Admission to internship (CHD 165, 265) is contingent upon a satisfactory medical examination. The medical form supplied at the beginning of the fall semester must be returned to the Early Childhood Development Program Head no later than September 30.

High school or equivalent developmental college course prerequisites include Algebra I, Algebra II and Geometry for students planning on working toward a baccalaureate degree at a four-year institution. (Students who plan to transfer to a four-year college are urged to consult the Early Childhood Development faculty members for electives and additional information.)

**Advanced Placement:** Students who have completed a two or three year child care/early childhood curriculum in an area high school may be awarded credit for CHD 122 and CHD 265 with certain conditions.

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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
CHD 121	Childhood Educational Development I	3	0	3
CHD 125	Creative Activities for Children	2	2	3
CHD <sup>1</sup> 165	Observation & Participation in Early Childhood Settings	1	8	3
ENG <sup>2</sup> 111	College Composition I (or ENG 101)	3	0	3
PSY 235	Child Psychology	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>13</b>	<b>10</b>	<b>16</b>
<b>Second Semester</b>				
CHD 122	Childhood Educational Develop. II (or CHD 120)	3	0	3
CHD 216	Early Childhood Prog., School, & Social Change	3	0	3
CHD <sup>1</sup> 265	Observation & Participation in Early Childhood Settings	1	8	3
HLT 135	Child Health and Nutrition (or CHD 118)	3	0	3
ENG <sup>2</sup> 112	College Composition II (or ENG 102)	3	0	3
PSY 120	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>8</b>	<b>18</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
CHD 210	Intro. to Exceptional Children	3	0	3
CHD 270	Admin. of Early Childhood Educational Programs	3	0	3
HLT 106	First Aid and Safety	2	0	2
MTH 120	Intro. to Mathematics (or MTH 151)	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>3</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>17</b>
<b>Fourth Semester</b>				
CHD 126	Methods and Materials for Developing Science and Mathematical Concepts in Young Children	3	0	3
CHD 166	Infant and Toddler Programs (or CHD 118)	3	0	3
CHD 205	Guiding the Behavior of Young Children	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
SOC 215	Sociology of the Family	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Total Minimum Credits for Degree</b>				<b>66</b>

<sup>1</sup> Coordinate with CHD 121 and CHD 122/120.

<sup>2</sup> Students planning to transfer should take English 111-112.

<sup>3</sup> Students planning to transfer should select electives from the "Approved List of Transfer Electives" on page 31.

## EDUCATION

### Award: Associate in Science (625)

**Purpose:** The curriculum is designed for persons who plan to transfer to a four-year college or university and pursue courses in elementary or secondary 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 their faculty advisors 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 (Algebra I, Geometry and Algebra II), 1 unit of laboratory science, and 1 unit of social science. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
HIS 121	United States History I	3	0	3
MTH 151	Math. for the Liberal Arts I (or MTH 163)	3	0	3
STD 100	Orientation	1	0	1
E <sup>2</sup>	Natural Science Elective	3	3	4
E <sup>1</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>
<b>Second Semester</b>				
EDU 100	Introduction to Education	1	0	1
ENG 112	College Composition II	3	0	3
HIS 122	United States History II	3	0	3
MTH 152	Math. for the Liberal Arts II (or MTH 271)	3	0	3
E <sup>2</sup>	Natural Science Elective	3	3	4
E <sup>1</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ENG 241	Survey of American Literature (or ENG 243)	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
PSY 201	Intro. to Psychology I	3	0	3
E <sup>3</sup>	Social Science Elective	3	0	3
E <sup>4</sup>	Humanities Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Fourth Semester</b>				
ENG 242	Survey of American Literature (or ENG 244)	3	0	3
HLT <sup>5</sup> 110	Concepts of Personal and Community Health	2	0	2
PSY 202	Intro. to Psychology II	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>3</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>0</b>	<b>14</b>
<b>Total Minimum Credits for Degree</b>				<b>63</b>

<sup>1</sup> Six semester hours must be chosen from Art, Music, Philosophy, or foreign language as listed from the "Approved List of Transfer Electives" on page 31.

<sup>2</sup> Biology 101-102 are preferred electives; however, electives may be chosen from the "Approved List of Transfer Electives" on page 31.

<sup>3</sup> A two-semester sequence should be selected from the following: ECO 201-202, PLS 211-212, or SOC 201-202. Students transferring to Roanoke College should take PSY 231-232 or PSY 235-236.

<sup>4</sup> Humanities elective must be chosen from the "Approved List of Transfer Electives" on page 31.

<sup>5</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**EDUCATION SECRETARY**

**Award:** Career Studies (020)

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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
PSY 120	Human Relations	3	0	3
E <sup>1</sup>	Elective	3	0	3
E <sup>1</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
<b>Second Semester</b>				
EDU 149	History and Philosophy of Education for School Secretaries	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
E <sup>1</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
Total Minimum Credits for Career Studies Certificate				18
<sup>1</sup> AST elective to be selected with departmental approval.				

## ELECTRICAL/ELECTRONICS ENGINEERING TECHNOLOGY

**Award:** Associate in Applied Science (941)

**Purpose:** The Electrical and Electronics Engineering Technology program 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 field (hardware and software) and most communications industries.

First-year students receive instruction in English and mathematics, 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) as well as application-oriented sequences involving recent developments in the electrical power and electrical machinery, electronic communications, and computer-based systems. In addition to the laboratory experiences provided with each course, the student participates in a shop course 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.

**Occupation Objective:** Electronics Technician; Computer System Field Technician; Power and Control System Technician; Broadcast Electronics Technician; and Communication Technician.

### Old Dominion University Bachelor Degree Program:

As a result of an articulation agreement with Old Dominion University, students receiving an Associate in Applied Science (AAS) degree in Electrical Engineering Technology may earn a baccalaureate degree (BS) in Engineering Technology on the Virginia Western Community College campus in Roanoke.

**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.

**Accreditation:** This program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

### DAY COURSE SEQUENCE

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
EGR 127	Intro. to Computer Programming	1	2	2
ENG 111	College Composition I	3	0	3
ETR 131	Electrical Circuits I	3	3	4
HLT/PED <sup>1</sup>	Health or Physical Education	1	0	1
MTH 113	Engr. Tech. Mathematics I	5	0	5
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>14</b>	<b>5</b>	<b>16</b>
<b>Second Semester</b>				
ELE 119	Electrical Shop Practices	0	3	1
ETR 132	Electrical Circuits II	3	3	4
HLT/PED <sup>1</sup>	Health or Physical Education	1	0	1
MTH 114	Engr. Tech. Mathematics II	4	0	4
SPD 100	Prin. of Public Speaking (or ENG 105)	3	0	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>6</b>	<b>16</b>
<b>Summer Semester</b>				
ELE 211	Electrical Machines I	3	3	4
ETR 280	Intro. to Digital Logic Circuits and Computers	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>6</b>	<b>6</b>	<b>8</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ETR 251	Electronic Devices and Circuit Analysis I	3	3	4
ETR 265	Advanced Microprocessors	3	3	4
PHY 201	General College Physics I	3	3	4
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>9</b>	<b>15</b>
<b>Fourth Semester</b>				
ELE 239	Programmable Controllers	1	2	2
ETR 241	Intro. to Communication Systems	3	3	4
ETR 252	Electronic Devices and Circuit Analysis II	3	3	4
PHY 202	General College Physics II	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>10</b>	<b>11</b>	<b>14</b>
<b>Total Minimum Credits for Degree</b>				<b>69</b>

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military credit.

<sup>2</sup> A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

### EVENING COURSE SEQUENCE

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
ETR 131	Electrical Circuits I	3	3	4
MTH 113	Engr. Tech. Mathematics I	<u>5</u>	<u>0</u>	<u>5</u>
	Total	8	3	9
<b>Second Semester</b>				
ETR 132	Electrical Circuits II	3	3	4
MTH 114	Engr. Tech. Mathematics II	<u>4</u>	<u>0</u>	<u>4</u>
	Total	7	3	8
<b>Summer Semester</b>				
EGR 127	Intro. Computer Programming	1	2	2
ELE 119	Electrical Shop Practices	<u>0</u>	<u>3</u>	<u>1</u>
	Total	1	5	3
<b>Third Semester</b>				
ETR 251	Electronic Devices and Circuit Analysis I	<u>3</u>	<u>3</u>	<u>4</u>
	Total	3	3	4
<b>Fourth Semester</b>				
ETR 252	Electronic Devices and Circuit Analysis II	<u>3</u>	<u>3</u>	<u>4</u>
	Total	3	3	4
<b>Fifth Semester</b>				
ELE 211	Electrical Machines	3	3	4
ETR 280	Intro. to Digital Logic Circuits and Computers	<u>3</u>	<u>3</u>	<u>4</u>
	Total	6	6	8

### Sixth Semester

ELE 239	Programmable Controllers	1	2	2
ETR 265	Advanced Microprocessors	<u>3</u>	<u>3</u>	<u>4</u>
	Total	4	5	6

### Seventh Semester

ETR 241	Electronic Communications I	<u>3</u>	<u>3</u>	<u>4</u>
	Total	3	3	4

### ADDITIONAL REQUIRED COURSES THAT MAY BE TAKEN ANY SEMESTER

ENG 111	College Composition I	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Education Elective	2	0	2
PHY 201	General College Physics I	3	3	4
PHY 202	General College Physics II	3	3	4
SPD 100	Prin. of Public Speaking (or ENG 105)	3	0	3
STD 100	Orientation	1	0	1
E <sup>2</sup>	Social Science Elective	3	0	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	21	6	23

Total Minimum Credits for Degree 69

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

**ELECTRICAL WIRING****Award:** 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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
BLD 111	Blueprint Reading and the Building Code	2	2	3
ELE 133	Practical Electricity I	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>Second Semester</b>				
ELE 110	Home Electric Power	2	2	3
ELE 134	Practical Electricity II	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>Third Semester</b>				
ELE 138	National Electrical Code	<u>2</u>	<u>0</u>	<u>2</u>
	Total	2	0	2
Total Credits Required for Career Studies Certificate				14

**ELECTRONIC SERVICING****Award:** Career Studies (009)

**Purpose:** The career studies program is designed to prepare a student for full-time employment in servicing, maintaining, and installing electronic systems ranging and from video and display systems to computer automation in industrial applications. The curriculum involves three semesters of study and practice in the specific technical subjects that are required for competence in this field. Emphasis on the basics along with hands-on troubleshooting on a variety of electronic systems affords graduates flexibility in choosing an occupation.

**Occupational Objectives:** Electronics Specialist, Industrial Electronics Technician; Computer Technician; Data Communications/Local Area Network Technician, Consumer Electronics Technician, Industrial Salesperson, Technical Representative, Field Service Technician, Media Specialist, Home Entertainment Salesperson, CATV/MATV Technician, Security and Safety Systems 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
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
ETR 195	Electronic Communications and Data Systems	<u>3</u>	<u>3</u>	<u>4</u>
	Total	6	12	10
<b>Second Semester</b>				
ETR 123	Electronic Applications I	1	2	2
ETR 141	Electronics I	3	0	3
ETR 295	Electronic Processing and Control Systems	<u>3</u>	<u>6</u>	<u>5</u>
	Total	7	8	10
<b>Third Semester</b>				
ETR 142	Electronics II	3	0	3
ETR 190	Coordinated Internship	0	5	1
ETR 199	Supervised Study (Electronics Lab)	0	3	1
ETR 285	Fundamentals of Microcomputer Repair	<u>3</u>	<u>3</u>	<u>4</u>
	Total	6	11	9
Total Minimum Credits for Certificate				29

**ENGINEERING**

**Award:** Associate in Science (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, biological systems, building construction, ceramics, chemical, civil, electrical, industrial, mechanical, metallurgical, mining, and nuclear.

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. Students are urged to acquaint themselves with the requirements of the 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.

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

An articulation agreement with Virginia Tech guarantees admission to the College of Engineering for all students who graduate from this program with a 3.0 GPA or higher.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
CHM 111	College Chemistry I	3	3	4
EGR 115	Engineering Graphics	1	3	2
EGR 120	Intro. to Engineering	2	0	2
ENG 111	College Composition I	3	0	3
MTH 175	Calculus of One Variable I	3	0	3
MTH 177	Introductory Linear Algebra	2	0	2
STD 100	Orientation (or approved STD elective)	<u>1</u>	<u>0</u>	<u>1</u>
Total		15	6	17
<b>Second Semester</b>				
CHM 112	College Chemistry II	3	3	4
EGR 125	Intro. to Engr. Methods	3	0	3
EGR 140	Engr. Mechanics - Statics	3	0	3
ENG 112	College Composition II	3	0	3
MTH 176	Calculus of One Variable II	3	0	3
MTH 178	Topics in Analytic Geometry	<u>2</u>	<u>0</u>	<u>2</u>
Total		17	3	18
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
EGR 245	Engr. Mechanics-Dynamics	3	0	3
MTH 277	Vector Calculus	4	0	4
PHY 241	University Physics I	3	3	4
E <sup>2</sup>	Social Science Elective	3	0	3
E <sup>3</sup>	Humanities Elective	<u>3</u>	<u>0</u>	<u>3</u>
Total		16	3	17
<b>Fourth Semester</b>				
HLT/PED <sup>1</sup>	Health or Physical Educ.	2	0	2
MTH 291	Differential Equations	3	0	3
PHY <sup>5</sup> 222	Engineering Physics II	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>2</sup>	Social Science Elective	3	0	3
E <sup>4</sup>	Engineering Elective	<u>3</u>	<u>0</u>	<u>3</u>
Total		17	0	17
Total Minimum Credits for Degree				69

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Students must select a two semester sequence from the following list: ECO 201-202, HIS 101-102, HIS 121-122.

<sup>3</sup> Students should work with their course advisors to carefully select a humanities elective that will be applicable in the baccalaureate program that they desire to pursue at a senior institution. Only one three credit humanities elective is required, however the completion of a sequence would insure transferability. Recommended electives include the following: HUM 201-202, ENG 241-242, ENG 243-244. Students who select HUM 201-202 and desire to transfer to Virginia Tech must take a 200 level social science sequence (ECO 201-202) to meet Virginia Tech core requirements.

<sup>4</sup> Students must select a course from the following list: EGR 206, EGR 246.

<sup>5</sup> Students who desire to transfer to a university program that requires a laboratory with this course should enroll in PHY-242.

**FIREFIGHTING AND PREVENTION****Award:** Career Studies (051)

**Occupational Objectives:** Training for positions in fire prevention and suppression, fire protection engineering, safety engineering, insurance inspection and investigation, industrial safety, and building inspection. Students must be certified EMTs upon graduation.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
ENG 111	English Composition	3	0	3
FIR 106	Fire Suppression Methods and Operations	3	0	3
PSY 120	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
<b>Second Semester</b>				
FIR 111	Hazardous Materials I	3	0	3
FIR 125	Fire Service Administration	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Third Semester</b>				
FIR 221	Building Construction and Codes	3	2	4
FIR 230	Investigation Procedures	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	2	7
Total Minimum Credits for Certificate				22

# FOOD SERVICE MANAGEMENT

**Award:** Career Studies (061)

**Purpose:** The curriculum is designed to provide an individual with a sufficient level of knowledge, understanding, and proficiency to perform tasks in the supervision and management of professional Food Service operations.

**Occupational Objectives:** Management, training, or supervisory positions in country clubs, restaurants, health departments, hospitals, nursing homes, public and private school systems, and any institutional food settings.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
HRI 120	Prin. of Food Preparation	3	3	4
SPD 105	Oral Communications	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	3	7
<b>Second Semester</b>				
HRI 158	Sanitation and Safety	3	0	3
PSY 120	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HLT 230	Principle of Nutrition & Human Development	3	0	3
HRI 221	Quantity Food Preparation I	<u>3</u>	<u>3</u>	<u>4</u>
	Total	6	3	7
<b>Fourth Semester</b>				
BUS 111	Principles of Supervision	3	0	3
IST 117	Intro. to Microcomputer Software	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Total Minimum Credits for Certificate</b>				<b>26</b>

## GENERAL STUDIES

**Award:** Associate in Science (699)

**Purpose:** The curriculum is specifically designed for students who want to transfer to a four-year college or university. For students who are uncertain about their vocational or educational goals, this curriculum 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. 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 their faculty advisors or counselors at Virginia Western in planning their programs and selecting their electives. In order to prepare for junior-class standing at a four-year college or university, the student usually must complete a program of study 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; algebra I, geometry, and algebra II; 1 unit of laboratory science; and 1 unit of social science. The courses in the General Studies curriculum assume that students have college level skills in reading, writing, and mathematics. Developmental courses are available and are recommended for students with deficiencies in these areas.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
MTH <sup>2</sup> 151	Mathematics for the Liberal Arts I (or MTH 163)	3	0	3
STD 100	Orientation	1	0	1
E <sup>1</sup>	Social Science Elective	3	0	3
E <sup>3</sup>	Natural Science Elective	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>
<b>Second Semester</b>				
ENG 112	College Composition II	3	0	3
MTH <sup>2</sup> 152	Mathematics for the Liberal Arts II or Elective (or MTH 271)	3	0	3
E <sup>1</sup>	Social Science Elective	3	0	3
E <sup>3</sup>	Natural Science Elective	3	3	4
E <sup>4</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>3</b>	<b>16</b>

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### Second-Year Curriculum

#### Third Semester

ENG 241	Survey of American Lit. I or			
ENG 243	Survey of English Lit. I	3	0	3
HIS <sup>5</sup> 101	History of Western Civilization I (or HIS 121)	3	0	3
SPD 100	Prin. of Public Speaking (or SPD 105)	3	0	3
E <sup>6</sup>	Humanities Elective	3	0	3
E <sup>4</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>

#### Fourth Semester

ENG 242	Survey of American Lit. II or			
ENG 244	Survey of English Lit. II	3	0	3
HIS <sup>5</sup> 102	History of Western Civilization II (or HIS 122)	3	0	3
HLT <sup>7</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
	Humanities Elective	3	0	3
	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>0</b>	<b>14</b>

Total Minimum Credits for Degree 62

<sup>1</sup> Social science electives must be selected from the "Approved List of Transfer Electives" on page 31. A two-semester sequence of the same course is recommended for transfer to most four-year institutions.

<sup>2</sup> MTH 151 or 163 must be completed. If only one semester of math is taken, an elective must be selected from the "Approved List of Transfer Electives" on page 31. The completion of a two-semester sequence of MTH 151-152 or MTH 163-271 is recommended for transfer to most four-year colleges. Students are urged to check the mathematics requirement of the four-year college to which they plan to transfer to determine the proper mathematics courses to be taken at the community college.

<sup>3</sup> A two-semester sequence selected from BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202 must be completed.

<sup>4</sup> Electives must be selected from the "Approved List of Transfer Electives" on page 31. A two-semester sequence of the same course is recommended for transfer to most four-year institutions.

<sup>5</sup> A two-semester sequence of HIS 101-102 or HIS 121-122 must be completed.

<sup>6</sup> Humanities electives must be selected from the "Approved List of Transfer Electives" on page 31. A two-semester sequence of the same course is recommended for transfer to most four-year institutions.

<sup>7</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

## HEALTH TECHNOLOGY

**Award:** Career Studies (059)

**Purpose:** The curriculum is designed to provide students with a course of study that will help prepare them for admission to and success in health technology degree programs. Graduates from the program will have completed prerequisites and support courses that are required in Virginia Western's associate degree programs in nursing, dental hygiene, and radiography. Completion of a career studies program does not guarantee admission to an associate degree program.

**Curriculum Admissions Requirements:** High school diploma or GED; four units of high school English; one unit each of high school (or college) biology and chemistry; Algebra I, Geometry, and Algebra II for radiography applicants; Algebra I and Algebra II for dental hygiene applicants; Algebra I and either Geometry or Algebra II for Nursing applicants. Science and mathematics prerequisites must be completed with a grade of "C" or better. Developmental courses may be taken to replace high school prerequisites.

## HEALTH TECHNOLOGY CORE

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
ENG 111	College Composition I (or ENG 101)	3	0	3
HLT <sup>1</sup> 143	Medical Terminology I	3	0	3
IST 113	Computer and Info. Systems (or IST 199)	1	0	1
PSY 201	Intro. to Psychology I	3	0	3
SPD 100	Prin. of Public Speaking (or ENG 102)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>14</b>	<b>0</b>	<b>14</b>

### PRE-DENTAL HYGIENE OPTION

BIO 141	Human Anatomy & Physiology I	3	2	4
BIO 142	Human Anatomy & Physiology II	3	2	4
NAS 185	Microbiology	3	2	4
SOC 201	Introduction to Sociology I (or SOC 215)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>6</b>	<b>15</b>

Total Credits for Certificate 29

### PRE-NURSING OPTION

BIO 141	Human Anatomy & Physiology I	3	2	4
BIO 142	Human Anatomy & Physiology II	3	2	4
NAS 185	Microbiology	3	2	4
PSY 215	Abnormal Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>6</b>	<b>15</b>

Total Credits for Certificate 29

### PRE-RADIOGRAPHY OPTION

NAS 171	Human Anatomy & Physiology	3	3	4
E	Social Science Elective	3	0	3
E <sup>2</sup>	General Elective	3	0	3
E	General Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>3</b>	<b>13</b>

Total Credits for Certificate 27

<sup>1</sup> Highly recommended for all students, but dental hygiene and nursing applicants may substitute a general elective.

<sup>2</sup> BIO 141 and BIO 142 may be substituted for NAS 171 and an elective.

## HORTICULTURE TECHNOLOGY

**Award:** Associate in Applied Science (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 Interior Landscaping/Floriculture or Landscaping. 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.

## INTERIOR LANDSCAPING/FLORICULTURE OPTION

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### First-Year Curriculum First Semester

ENG <sup>1</sup> 101	Practical Writing I	3	0	3
HLT/PED <sup>3</sup>	Health or Physical Educ.	1-2	0	1-2
HRT 100	Intro. to Horticulture	2	2	3
HRT 247	Indoor Plants	1	2	2
MTH 120	Intro. to Mathematics	3	0	3
STD 100	Orientation	1	0	1
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
Total		14-15	4	16-17

### Second Semester

BUS 125	Applied Business Mathematics	3	0	3
ENG <sup>1</sup> 102	Practical Writing II	3	0	3
HLT/PED <sup>3</sup>	Health or Physical Educ.	1-2	0	1-2
HRT 127	Horticultural Botany	2	2	3
HRT 236	Interior Landscaping	1	2	2
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
Total		13-14	4	15-16

### Second-Year Curriculum Third Semester

BUS 165	Small Business Mgmt.	3	0	3
HRT 115	Plant Propagation	2	2	3
HRT 121	Greenhouse Crop Production I	2	2	3
HRT 207	Plant Pest Management	2	2	3
HRT 260	Intro. to Floral Design	2	2	3
HRT 267	Silk and Dried Flower Arranging	<u>1</u>	<u>2</u>	<u>2</u>
Total		12	10	17

### Fourth Semester

HRT 205	Soils	2	2	3
HRT 265	Professional Floral Design and Shop Management	2	2	3
HRT 285	Management of a Horticulture Business	2	2	3
HRT 297	Cooperative Education (or HRT 296)	0	6	2
IST 199	Microcomputer Seminar	1	0	1
MKT 100	Prin. of Marketing (or MKT 110)	3	0	3
E	Elective	<u>2-3</u>	<u>0</u>	<u>2-3</u>
Total		12-13	12	17-18

Total Minimum Credits for Degree

65

<sup>1</sup> ENG 111-112 and SPD 100 as elective should be taken by students planning to transfer.

<sup>2</sup> A two-semester sequence in social science is history, psychology, sociology, political science or economics.

<sup>3</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**LANDSCAPE OPTION**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG <sup>1</sup> 101	Practical Writing I	3	0	3
HLT/PED <sup>3</sup>	Health or Physical Educ.	1-2	0	1-2
HRT 100	Intro. to Horticulture	2	2	3
HRT 201	Landscape Plant Materials I	2	2	3
MTH 120	Intro. to Mathematics	3	0	3
STD 100	Orientation	1	0	1
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15-16</b>	<b>4</b>	<b>17-18</b>

**Second Semester**

BUS 125	Applied Business Mathematics	3	0	3
ENG <sup>1</sup> 102	Practical Writing II	3	0	3
HLT/PED <sup>3</sup>	Health or Physical Educ.	1-2	0	1-2
HRT 127	Horticultural Botany	2	2	3
HRT 202	Landscape Plant Materials II	2	2	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14-15</b>	<b>4</b>	<b>16-17</b>

**Second-Year Curriculum**

**Third Semester**

BUS 165	Small Business Mgmt.	3	0	3
IST 199	Microcomputer Seminar	1	0	1
HRT 115	Plant Propagation	2	2	3
HRT 207	Plant Pest Management	2	2	3
HRT 231	Planting Design I	2	2	3
E	Elective	<u>2-3</u>	<u>0</u>	<u>2-3</u>
	<b>Total</b>	<b>12-13</b>	<b>6</b>	<b>15-16</b>

**Fourth Semester**

HRT 205	Soils	2	2	3
HRT 232	Planting Design II (or HRT 269)	2	2	3
HRT 275	Landscape Construction and Maintenance	2	2	3
HRT 285	Management of a Horticulture Business	2	2	3
HRT 297	Cooperative Education (or HRT 296)	0	6	2
MKT 100	Prin. of Marketing (or MKT 110)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>11</b>	<b>14</b>	<b>17</b>

Total Minimum Credits for Degree 65

<sup>1</sup> ENG 111-112 and SPD 100 as elective should be taken by students planning to transfer.

<sup>2</sup> A two-semester sequence in social science is history, psychology, sociology, political science or economics.

<sup>3</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**HORTICULTURE - FLORAL DESIGN AND INDOOR PLANT CARE**

**Award:** Career Studies (013)

**Purpose:** This curriculum is designed to prepare students for entry level positions in floral and indoor plant care businesses and to upgrade the skills of those currently employed in the industry. All of the courses offered in this program can be applied to the AAS degree in Horticulture Technology (Interior Landscaping/Floriculture Option).

**Occupational Objectives:** Floral designer, interior landscape technician.

**Curriculum Admission Guidelines:** Student must meet the general requirements for admission to the college.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
HRT 207	Plant Pest Management	2	2	3
HRT 247	Indoor Plants	1	2	2
HRT 260	Intro. to Floral Design	2	2	3
HRT 267	Silk and Dried Flower Arranging	<u>1</u>	<u>2</u>	<u>2</u>
	<b>Total</b>	<b>6</b>	<b>8</b>	<b>10</b>
<b>Second Semester</b>				
HRT 236	Interior Landscaping	1	2	2
HRT 265	Professional Floral Design and Shop Management	2	2	3
E <sup>1</sup>	Horticultural Elective	<u>2</u>	<u>2</u>	<u>3</u>
	<b>Total</b>	<b>5</b>	<b>6</b>	<b>8</b>

Total Minimum Credits for Certificate 18

<sup>1</sup> To be selected with departmental approval.

## HORTICULTURE - LANDSCAPING AND OUTDOOR PLANT CARE

**Award:** Career Studies (014)

**Purpose:** This curriculum is designed to prepare students for entry level positions in landscaping businesses and to upgrade the skills of those currently employed in the industry. All of the courses offered in this program can be applied to the AAS degree in Horticulture Technology (Landscaping Option).

**Occupational Objectives:** Landscape designer, landscape technician.

**Curriculum Admission Guidelines:** Student must meet the general requirements for admission to the college.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>Summer Session</b>				
HRT 201	Landscape Plant Materials I	<u>2</u>	<u>2</u>	<u>3</u>
	Total	2	2	3
<b>First Semester</b>				
HRT 207	Plant Pest Management	2	2	3
HRT 231	Planting Design I	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	4	6
<b>Second Semester</b>				
HRT 202	Landscape Plant Materials II	2	2	3
HRT 232	Planting Design II (or HRT 269)	2	2	3
HRT 275	Landscape Construction and Maintenance	<u>2</u>	<u>2</u>	<u>3</u>
	Total	6	6	9
Total Minimum Credits for Certificate				18

## HORTICULTURE - PLANT PROPAGATION AND PRODUCTION

**Award:** Career Studies (010)

**Purpose:** This curriculum is designed to prepare students for entry level positions in greenhouse, nursery, and garden center businesses and to upgrade the skills of those currently employed in the industry. All of the courses offered in this program can be applied to the AAS degree in Horticulture Technology (Interior Landscaping/Floriculture Option).

**Occupational Objective:** Assistant grower, wholesale and retail salesperson, production technician.

**Curriculum Admission Guidelines:** Student must meet the general requirements for admission to the college.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
HRT 115	Plant Propagation	2	2	3
HRT 121	Greenhouse Crop Production	2	2	3
HRT 207	Plant Pest Management	<u>2</u>	<u>2</u>	<u>3</u>
	Total	6	6	9
<b>Second Semester</b>				
HRT 205	Soils	2	2	3
HRT 285	Mgmt. of a Horticulture Business	2	2	3
E <sup>1</sup>	Horticultural Elective	<u>2</u>	<u>2</u>	<u>3</u>
	Total	6	6	9
Total Minimum Credits for Certificate				18

<sup>1</sup> *To be selected with departmental approval.*

## INDUSTRIAL TECHNOLOGY

### Award: Career Studies (058)

**Purpose:** The curriculum is designed to upgrade the technical skills or expand the technical knowledge of existing employees; retrain employees whose job skills have become obsolete, or prepare potential employees for entry level positions.

Graduates from this program will complete 6 semester hours in basic education (communication and human relations skills) and 12-19 semester hours in technical coursework.

**Occupational Objectives:** Entry level or advancement opportunities in a broad range of technical trades. Typical of job titles include Electronic Service Technician, Industrial Electrician, Maintenance Mechanic, Machine Tool Operator, or Welder and Cutter.

**Curriculum Admission Guidelines:** Proficiency in high school English and mathematics (1 unit of Algebra).

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>INDUSTRIAL TECHNOLOGY CORE</b>				
ENG 101	Practical Writing I	3	0	3
E	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>ELECTRICAL OPTION</b>				
BLD 111	Blueprint Reading	2	3	3
ELE 133	Practical Electricity I	2	2	3
ELE 134	Practical Electricity II	2	2	3
ELE 138	National Electrical Code	2	0	2
ELE 147	Electrical Power and Controls	2	2	3
ELE 239	Programmable Controllers	<u>2</u>	<u>0</u>	<u>2</u>
	Total	12	9	16
Total Credits for Certificate				22
<b>ELECTRONICS OPTION</b>				
ELE 119	Electrical Shop Practices	0	3	1
ETR 113	D.C. and A.C. Fundamentals	3	3	4
ETR 148	Amplifiers and Integrated Circuits	3	3	4
ETR 281	Digital Systems I	<u>2</u>	<u>3</u>	<u>3</u>
	Total	8	12	12
Total Credits for Certificate				18
<b>MAINTENANCE OPTION</b>				
AIR 121	Air Conditioning & Refrigeration I	2	2	3
AIR 122	Air Conditioning & Refrigeration II	2	2	3
BLD 111	Blueprint Reading I	2	2	3
ELE 133	Practical Electricity I	2	2	3
ELE 134	Practical Electricity II	2	2	3
MEC 162	Hydraulics and Pneumatics	3	0	3
WEL 120	Fundamentals of Welding	<u>2</u>	<u>2</u>	<u>3</u>
	Total	15	12	21
Total Credits for Certificate				27
<b>WELDING OPTION</b>				
DRF 161	Blueprint Reading	1	3	2
MAC 131	Machine Lab I	1	3	2
WEL 120	Fundamentals of Welding	2	2	3
WEL 121	ARC Welding	1	3	2
WEL 135	Inert Gas Welding	1	3	2
WEL 145	Welding Metallurgy	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	14	14
Total Credits for Certificate				20
<b>METAL PROCESSING OPTION</b>				
DRF 161	Blueprint Reading	1	3	2
IND 140	Quality Control	2	0	2
MAC 131	Machine Lab I	1	3	2
MEC 118	Automated Manufacturing Technology	1	3	2
WEL 120	Fundamentals of Welding	2	2	3
WEL 145	Welding Metallurgy	<u>3</u>	<u>0</u>	<u>3</u>
	Total	10	11	14
Total Credits for Certificate				20

**INFORMATION SYSTEMS TECHNOLOGY**

**Award:** Associate in Applied Science (234)

**Purpose:** This curriculum is designed for persons who will seek employment in the computer information field in business or industry.

**Occupational Objectives:** Computer Programmer or Trainee, with a career track toward Analyst or Project Leader.

**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. Proficiency in keyboarding skill required (high school or college keyboarding). Computer literacy is strongly recommended. Developmental courses may be recommended for students with deficiencies in English, mathematics or keyboarding.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
ECO 201	Prin. of Economics I	3	0	3
ENG 111	College Composition I	3	0	3
IST 162	Computer Programming: COBOL I	4	0	4
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>17</b>	<b>2</b>	<b>18</b>
<b>Second Semester</b>				
ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. of Accounting Lab II	0	2	1
BUS 125	Applied Busi. Mathematics (or MTH 271 or BUS 225)	3	0	3
ECO <sup>1</sup> 202	Prin. of Economics II	3	0	3
IST 133	Database Mgmt. Software	3	0	3
IST 262	Computer Programming: COBOL II	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>2</b>	<b>16</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED Elective)	2	0	2
IST 176	Event-Driven Basic (Visual Basic)	4	0	4
IST 200	Local Area Networks	4	0	4
IST 251	Computer Information System Development	3	0	3
SPD 105	Oral Communications	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Fourth Semester</b>				
FIN 215	Financial Management	3	0	3
IST 172	Computer Programming: "C" I	4	0	4
IST 255	Computer Programming Applications	4	0	4
IST 229	Internet Programming	3	2	4
E <sup>3</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>0</b>	<b>18</b>
<b>Total Minimum Credits for Degree</b>				<b>68</b>

<sup>1</sup> An elective may be substituted for ECO 202; the elective must be selected from History, Political Science, Psychology, Sociology, or Social Science.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>3</sup> Elective may be any 100 or above level course.

## LEGAL ASSISTING

**Award:** Associate in Applied Science (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, Geometry and Algebra II.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
ENG 111	College Composition	3	0	3
MTH 151	Mathematics for the Liberal Arts I	3	0	3
LGL 110	Intro. to Law & the Legal Assistant	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>2</b>	<b>17</b>
<b>Second Semester</b>				
HLT <sup>1</sup> 110	Concepts of Personal & Community Health	1-2	0	2
LGL 125	Legal Research	3	0	3
LGL 126	Legal Writing	3	0	3
PSY 120	Human Relations	3	0	3
SPD 105	Oral Communications	3	0	3
E	Legal Assisting Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16-17</b>	<b>0</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
LGL 115	Real Estate Law for Legal Assistants	3	0	3
LGL 117	Family Law	3	0	3
LGL 200	Ethics for the Legal Assistant	1	0	1
LGL 225	Estate Planning and Probate	3	0	3
LGL 230	Legal Transactions	3	0	3
E	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Fourth Semester</b>				
LGL 216	Trial Preparation and Discovery Practice	3	0	3
LGL 235	Legal Aspects of Business Organizations	3	0	3
E <sup>2</sup>	Elective	3	0	3
E	Legal Assisting Elective	3	0	3
E	Legal Assisting Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Total Minimum Credits for Degree</b>				<b>65</b>

<sup>1</sup> Two credits of Health (HLT) or Physical Education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Elective may be any General Education 100-level or 200-level course. This would include qualifying courses from Humanities, Social Science, Math or Science.

## LIBERAL ARTS

**Award:** Associate in Arts (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 at four-year institutions: 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 their faculty advisor or counselor at Virginia Western 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 of study 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; algebra I, geometry, and algebra II; 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### First-Year Curriculum First Semester

ENG	111	College Composition I	3	0	3
STD	100	Orientation	1	0	1
E <sup>1</sup>		Social Science Elective	3	0	3
E <sup>2</sup>		Natural Science Elective	3	3	4
E <sup>3</sup>		Foreign Language			
		Elective	<u>3-4</u>	<u>0</u>	<u>3-4</u>
		Total	13-14	3	14-15

### Second Semester

ENG	112	College Composition II	3	0	3
IST	113	Computer and Info. Systems	1	0	1
E <sup>1</sup>		Social Science Elective	3	0	3
E <sup>2</sup>		Natural Science Elective	3	3	4
E <sup>3</sup>		Foreign Language			
		Elective	<u>3-4</u>	<u>0</u>	<u>3-4</u>
		Total	13-14	3	14-15

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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### Second-Year Curriculum Third Semester

ENG	241	Survey of American Literature I (or ENG 243)	3	0	3
HIS	101	History of Western Civilization I (or HIS 121)	3	0	3
MTH	151	Mathematics for the Liberal Arts I (or MTH 163)	3	0	3
SPD	100	Prin. of Public Speaking	3	0	3
E <sup>4</sup>		Humanities Elective or Foreign Language Elective	<u>3</u>	<u>0</u>	<u>3</u>
		Total	15	0	15

### Fourth Semester

ENG	242	Survey of American Literature II (or ENG 244)	3	0	3
HIS	102	History of Western Civilization II (or HIS 122)	3	0	3
HLT <sup>5</sup>	110	Concepts of Personal and Community Health (or PED)	2	0	2
MTH	152	Mathematics for the Liberal Arts II (or MTH 271)	3	0	3
E <sup>4</sup>		Humanities Elective or Foreign Language Elective	3	0	3
E <sup>6</sup>		Elective	<u>3</u>	<u>0</u>	<u>3</u>
		Total	17	0	17

Total Minimum Credits for Degree 60-62

<sup>1</sup> Social science electives must be chosen from the "Approved List of Transfer Electives" on page 31. A two-semester sequence is normally recommended for transfer to a four-year institution.

<sup>2</sup> Natural science elective must include a two-semester sequence of BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202.

<sup>3</sup> Foreign language electives must be selected from French, German, or Spanish. Completion of intermediate level is required for graduation. Students may take the intermediate level, composed of two three-credit courses, during their first year to meet the foreign language requirement if they have completed two years of a high school foreign language with at least a "B" average. If not, students must take the beginning level, composed of two four-credit courses, during the first year and the intermediate level during the second year.

<sup>4</sup> Humanities electives must be chosen from the "Approved List of Transfer Electives" on page 31. A two-semester sequence of the same course is recommended for transfer to most four-year institutions. However, if students took the beginning level of a foreign language during the first year, they must take the intermediate level for the humanities elective.

<sup>5</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>6</sup> Electives must be chosen from the "Approved List of Transfer Electives" on page 31.

## LIBERAL ARTS SPECIALIZATION: FINE ARTS

**Award:** Associate in Arts (648-01)

**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 their faculty advisor or counselor at Virginia Western in planning their program of study 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 of study 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. High school record should include 4 units of English; algebra I, geometry and algebra II; 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ART 121	Drawing I	1	4	3
ENG 111	College Composition I	3	0	3
IST 113	Computers & Information Systems	1	0	1
STD 100	Orientation	1	0	1
E <sup>1</sup>	Foreign Language Elective	3-4	0	3-4
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12-13</b>	<b>4</b>	<b>14-15</b>
<b>Second Semester</b>				
ART 122	Drawing II	1	4	3
ENG 112	College Composition II	3	0	3
SPD 100	Prin. of Public Speaking (or SPD 105)	3	0	3
E <sup>1</sup>	Foreign Language Elective	3-4	0	3-4
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>13-14</b>	<b>4</b>	<b>15-16</b>

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ART 131	Fundamentals of Design I	1	4	3
ENG <sup>4</sup> 241	Survey of American Literature I or Foreign Language Elective	3	0	3
HIS 101	History of Western Civilization I (or HIS 121)	3	0	3
MTH 151	Mathematics for the Liberal Arts I (or MTH 163)	3	0	3
E <sup>3</sup>	Natural Science Elective	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>13</b>	<b>7</b>	<b>16</b>

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>Fourth Semester</b>				
ART <sup>4</sup> 132	Fundamentals of Design II or Foreign Language Elective	1-3	4-0	3
HIS 102	History of Western Civilization II (or HIS 122)	3	0	3
HLT <sup>5</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
MTH 152	Mathematics for the Liberal Arts II (or MTH 271)	3	0	3
E <sup>3</sup>	Natural Science Elective	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>12-14</b>	<b>7-3</b>	<b>15</b>

Total Minimum Credits for Degree 60-62

<sup>1</sup> Foreign language electives must be chosen from French, German, or Spanish. Completion of intermediate level is required for graduation. Students may take the intermediate level, composed of two three-credit courses, during their first year to meet the foreign language requirement if they have completed two years of a high school foreign language with at least a "B" average. If not, students must take the beginning level, composed of two four-credit courses, during the first year and the intermediate level during the second year.

<sup>2</sup> Social science electives must be chosen from the "Approved List of Transfer Electives" on page 31. A two-semester sequence is normally recommended for transfer to a four-year institution.

<sup>3</sup> A two-semester sequence of natural science must be chosen from BIO 101-102, CHM 111-112, GOL 105-106, or PHY 201-202.

<sup>4</sup> If students took the beginning level of foreign language during the first year, then they must take the intermediate level during the second year. On the other hand, if they took the intermediate level during the first year, they will take ENG 241 and ART 132 during the second year.

<sup>5</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**MANAGEMENT****(Banking and Finance, Real Estate, Merchandising)**

**Award:** Associate in Applied Science (212)

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

**Occupational Objectives:** Management training, supervision, real estate sales and finance, retail merchandising, rate analyst, purchase agent, sales supervisor, and other related traffic and transportation occupations.

**Radford University Bachelor Degree Program:** As a result of an articulation agreement with Radford University, any student who completes the Associate in Applied Science (AAS) degree in Management will be granted admission to the Radford University Bachelor of Business Administration (BBA) degree in Management (Organizational Management concentration) offered on Virginia Western's campus. MTH 163 and MTH 271 are required instead of MTH 120 or BUS 125 for students in this transfer program.

**Curriculum Admission Guidelines:** Minimum of two units of high school math, one 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.

**MANAGEMENT**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
BUS 100	Intro. to Business	3	0	3
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>2</b>	<b>17</b>
<b>Second Semester</b>				
ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. 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
HLT <sup>1</sup> 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
MKT 100	Principles of Marketing	3	0	3
SPD 105	Oral Communication	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>2</b>	<b>18</b>

**Second-Year Curriculum****Third Semester**

ACC 261	Prin. of Federal Taxation I	3	0	3
BUS 205	Human Resource Mgmt.	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	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>

**Fourth Semester**

ACC 215	Computerized Accounting	3	0	3
AST 205	Business Communications	3	0	3
BUS 155	Applied Mgmt. Principles	3	0	3
ECO 202	Principles of Economics II	3	0	3
FIN 215	Financial Management	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>18</b>	<b>0</b>	<b>18</b>

Total Minimum Credits for Degree

68

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Elective may be any 100 or above level course.

**BANKING AND FINANCE**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**First-Year Curriculum****First Semester**

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>2</b>	<b>17</b>

**Second Semester**

ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. of Accounting Lab II	0	2	1
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
FIN 110	Principles of Banking (or FIN 108)	3	0	3
HLT <sup>1</sup> 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
MKT 100	Principles of Marketing	3	0	3
SPD 105	Oral Communication	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17</b>	<b>2</b>	<b>18</b>

**Second-Year Curriculum****Third Semester**

ACC 261	Prin. of Federal Taxation I	3	0	3
BUS 150	Principles of Management	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	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>

**Fourth Semester**

ACC 215	Computerized Accounting	3	0	3
AST 205	Business Communications	3	0	3
BUS 155	Applied Management Prin.	3	0	3
FIN 215	Financial Management	3	0	3
ECO 202	Principles of Economics II	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	18	0	18

Total Minimum Credits for Degree 68

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Elective may be any 100 or above level course.

**MERCHANDISING**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**First-Year Curriculum  
First Semester**

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Ed.	1	0	1
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	Total	17	2	18

**Second Semester**

ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. of Accounting Lab II	0	2	1
AST 205	Business Communications	3	0	3
BUS 125	Applied Business Mathematics (or MTH 271)	3	0	3
BUS 150	Principles of Management (or BUS 111 or 165)	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Ed.	1	0	1
MKT 100	Principles of Marketing	<u>3</u>	<u>0</u>	<u>3</u>
	Total	16	2	17

**Second-Year Curriculum  
Third Semester**

ACC 261	Prin. 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
MKT 220	Principles of Advertising	3	0	3
SPD 105	Oral Communication	<u>3</u>	<u>0</u>	<u>3</u>
	Total	18	0	18

**Fourth Semester**

BUS 155	Applied Management Prin.	3	0	3
ECO 202	Principles of Economics II	3	0	3
FIN 215	Financial Management	3	0	3
MKT 110	Principles of Selling	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	15	0	15

Total Minimum Credits for Degree 68

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Elective may be any 100 or above level course.

**REAL ESTATE**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**First-Year Curriculum  
First Semester**

ACC 211	Prin. of Accounting I	3	0	3
ACC 213	Prin. of Accounting Lab I	0	2	1
BUS 100	Introduction to Business	3	0	3
ENG 111	College Composition I	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Ed.	1	0	1
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 120	Intro. to Mathematics (or MTH 163)	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	Total	17	2	18

**Second Semester**

ACC 212	Prin. of Accounting II	3	0	3
ACC 214	Prin. 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
HLT/PED <sup>1</sup>	Health or Physical Ed.	1	0	1
MKT 100	Principles of Marketing	3	0	3
REA 100	Principles of Real Estate	<u>4</u>	<u>0</u>	<u>4</u>
	Total	17	2	18

**Second-Year Curriculum  
Third Semester**

ACC 261	Prin. 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	<u>3</u>	<u>0</u>	<u>3</u>
	Total	18	0	18

**Fourth Semester**

AST 205	Business Communications	3	0	3
ECO 202	Principles of Economics II	3	0	3
REA 217	Real Estate Finance (or FIN 215)	3	0	3
REA 245	Real Estate Law (or LGL 115)	3	0	3
E <sup>2</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	15	0	15

Total Minimum Credits for Degree 69

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Elective may be any 100 or above level course.

## MECHANICAL ENGINEERING TECHNOLOGY

### (Automated Manufacturing Emphasis)

**Award:** Associate in Applied Science (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.

**Old Dominion University Bachelor Degree Program:** As a result of an articulation agreement with Old Dominion University, students receiving an Associate in Applied Science (AAS) degree in Mechanical Engineering Technology may earn a baccalaureate degree (BS) in Engineering Technology on the Virginia Western Community College campus in Roanoke.

**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.

**Accreditation:** This program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
DRF 111	Technical Drafting I	1	3	2
EGR 100	Engr. Tech. Orientation	0	2	1
ENG 111	College Composition I	3	0	3
MAC 131	Machine Lab I	1	3	2
MEC 113	Materials and Processes of Industry	3	0	3
MTH 113	Engr. Technical Math.	5	0	5
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>14</b>	<b>8</b>	<b>17</b>
<b>Second Semester</b>				
DRF 201	Computer Aided Drafting and Design	1	3	2
ELE 150	A.C. and D.C. Circuit Fundamentals	2	3	3
MEC 118	Automated Manufacturing Technology	1	3	2
MEC 131	Mechanics I-Statics for Engineering Technology	3	0	3
MTH 114	Engr. Technical Math. II	4	0	4
SPD 100	Prin. of Public Speaking (or SPD 105)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>9</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
DRF 202	Computer Aided Drafting and Design II	1	3	2
HLT/ PED <sup>2</sup>	Health or Physical Education	2	0	2
MEC 132	Mechanics II-Strength of Materials	3	0	3
MEC 135	Mechanics Laboratory	0	2	1
MEC 255	Thermodynamics	3	0	3
PHY 201	General College Physics I	3	3	4
E <sup>1</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>8</b>	<b>18</b>
<b>Fourth Semester</b>				
IND 230	Applied Quality Control	2	2	3
MAC 245	Advanced Numerical Control	1	3	2
MEC 211	Machine Design I	4	0	4
PHY 202	General College Physics II	3	3	4
E <sup>1</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>13</b>	<b>8</b>	<b>16</b>
<b>Total Minimum Credits for Degree</b>				<b>68</b>

<sup>1</sup> A two-semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**MEDICAL TRANSCRIPTIONIST**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**Award:** 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 for clinical experience.

**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 Chair to continue in the major.

**First-Year Curriculum  
First Semester**

AST <sup>1</sup> 102	Keyboarding II	3	0	3
AST 113	Skill and Accuracy	1	0	1
AST 140	Introduction to Windows	1	0	1
ENG 101	Practical Writing I	3	0	3
HLT 143	Medical Terminology I	3	0	3
NAS 171	Human Anatomy and Physiology I	3	3	4
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>15</b>	<b>3</b>	<b>16</b>

**Second Semester**

AST 141	Word Processing I (Word)	3	0	3
AST <sup>2</sup> 245	Medical Machine Transcription I	3	0	3
ENG 102	Practical Writing II	3	0	3
HIT <sup>2</sup> 125	Medical Report Transcription	0	12	3
HLT 144	Medical Terminology II	2	0	3
PSY 120	Human Relations	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>12</b>	<b>18</b>

**Second-Year Curriculum  
Third Semester**

HIT 121	Medical Transcription I	0	12-C	4
HIT 196	On-site Training in Medical Transcription	<u>0</u>	<u>9-C</u>	<u>3</u>
	<b>Total</b>	<b>0</b>	<b>21-C</b>	<b>7</b>

**Total Minimum Credits for Degree** 41

<sup>1</sup> High school typing or a satisfactory score (minimum of 35 wpm) on a keyboarding skill examination required.  
<sup>2</sup> Prerequisite: AST 102.

**MENTAL HEALTH****CLINICAL TRACK**

**Award:** Associate in Applied Science (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 **transfer 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.

**Radford University Bachelor Degree Program:** As a result of an articulation agreement with Radford University, any student who has completed the Associate in Applied Science (AAS) degree in Mental Health Technology will be granted admission to the Radford University Bachelor of Science (BS) degree in Social Work offered on the Virginia Western Community College campus. For more information, contact Mr. Richard Gaynor, Mental Health Program Director at (540) 857-7288.

**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 transfer track may transfer to a four-year college or university for bachelor degrees in fields such as social work, psychology, special education, gerontology, and human resources.

**Curriculum Admission Guidelines:** Proficiency in high school English and Algebra I for clinical track; Algebra I, Algebra II and Geometry are prerequisites for the transfer track. Developmental courses may be recommended for students with deficiencies in English and mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 101	Practical Writing I	3	0	3
MEN 100	Intro. to Mental Health	3	0	3
MEN <sup>1</sup> 101	Mental Health Skill Training I	3	0	3
MTH 120	Intro. to Mathematics (or MTH 151)	3	0	3
PSY 220	Intro. to Behavior Modification	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Second Semester</b>				
ENG 102	Practical Writing II	3	0	3
MEN <sup>1</sup> 102	Mental Health Skill Training II	3	0	3
MEN 225	Counseling Therapy	3	0	3
MEN <sup>1</sup> 290	Coordinated Internship	0	15	5
PSY 215	Abnormal Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>15</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED elective)	2	0	2
MEN <sup>1</sup> 221	Group Process I	3	0	3
MEN <sup>1</sup> 290	Coordinated Internship	0	15	5
PSY 201	Intro. to Psychology I	<u>2</u>	<u>0</u>	<u>2</u>
	<b>Total</b>	<b>8</b>	<b>15</b>	<b>13</b>
<b>Fourth Semester</b>				
IST 117	Intro. to Microcomputer Software	3	0	3
MEN <sup>1</sup> 222	Group Process II	3	0	3
MEN <sup>1</sup> 290	Coordinated Internship	0	15	5
PSY 202	Intro. to Psychology II	3	0	3
E	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>15</b>	<b>17</b>
<b>Total Minimum Credits for Degree</b>				<b>63</b>

<sup>1</sup> Departmental approval needed or student must be enrolled in Mental Health Program.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

**TRANSFER TRACK**

**MICROCOMPUTER STUDIES**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
MEN 100	Intro. to Mental Health	3	0	3
MEN <sup>1</sup> 101	Mental Health Skill Training I	3	0	3
MTH <sup>4</sup> 151	Mathematics for the Liberal Arts	3	0	3
PSY 220	Intro. to Behavior Modification	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>16</b>
<b>Second Semester</b>				
ENG 112	College Composition II	3	0	3
MEN <sup>1</sup> 102	Mental Health Skill Training II	3	0	3
MEN <sup>1</sup> 225	Counseling Therapy	3	0	3
MEN <sup>1</sup> 290	Coordinated Internship	0	15	5
PSY 215	Abnormal Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>15</b>	<b>17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HLT <sup>2</sup> 110	Concepts of Personal and Community Health (or PED)	2	0	2
MEN <sup>1</sup> 221	Group Process I	3	0	3
MEN <sup>3</sup> 290	Coordinated Internship (or Electives)	0	15	5
PSY 201	Intro. to Psychology I	3	0	3
E <sup>5</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>11</b>	<b>15</b>	<b>16</b>
<b>Fourth Semester</b>				
IST 117	Intro. to Microcomputer Software	3	0	3
MEN <sup>1</sup> 222	Group Process II	3	0	3
PSY 202	Intro. to Psychology	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>5</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>15</b>	<b>0</b>	<b>15</b>
<b>Total Minimum Credits for Degree</b>				<b>64</b>

**Award: 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 skills in microcomputer hardware selected operating systems, spreadsheets, database manipulation, and programming.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
IST 117	Intro. to Microcomputer Software	3	0	3
IST 123	Spreadsheet Software I	<u>4</u>	<u>0</u>	<u>4</u>
	<b>Total</b>	<b>7</b>	<b>0</b>	<b>7</b>
<b>Second Semester</b>				
IST 133	Database Mgmt. Software	4	0	4
IST 200	Local Area Network	<u>4</u>	<u>0</u>	<u>4</u>
	<b>Total</b>	<b>8</b>	<b>0</b>	<b>8</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
IST 176	Event-Driven Basic (Visual Basic)	4	0	4
IST 251	Computer Info. System Development	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>7</b>	<b>0</b>	<b>7</b>
<b>Fourth Semester</b>				
IST 172	Computer Prog. "C" I	4	0	4
IST 255	Computer Programming Applications	<u>4</u>	<u>0</u>	<u>4</u>
	<b>Total</b>	<b>8</b>	<b>0</b>	<b>8</b>
<b>Total Minimum Credits for Certificate</b>				<b>30</b>

<sup>1</sup> Departmental approval needed or student must be enrolled in Mental Health Program.

<sup>2</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>3</sup> Two transfer electives from the "Approved List of Transfer Electives" on page 31 may be substituted with the permission of the program head.

<sup>4</sup> Mathematics for the Liberal Arts" or any higher level mathematics.

<sup>5</sup> Students entering the Radford University program should take PSY 235 and PSY 236 as their electives and may substitute either PSY 235 or PSY 236 for the PSY 202 requirement.

## NURSING

**Award:** Associate in Applied Science (156)

*Also see: Practical Nursing*

**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.).

**NOTE:** Individuals who have a felony or misdemeanor conviction may not be allowed to write the RN licensing exam. This decision is made by the State Board of Nursing. For questions regarding this issue, call Virginia Board of Nursing, Richmond, Virginia (804) 662-9909.

**Accreditation:** This program is fully accredited by the Virginia 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.

**Radford University Bachelor Degree Program:** As a result of an articulation agreement with Radford University, any student who completes the Associate in Applied Science (AAS) degree in Nursing, with a cumulative grade point average of 2.5 or higher will be granted admission to the Radford University's School of Nursing, RN to BSN tract.

### Curriculum Admission Guidelines and Procedure For the Class of 1998:

1. The applicant must hold a high school diploma or GED and have completed the following high school prerequisites with a grade of C or better: one unit of biology, one unit of chemistry, one unit of Algebra I, and one unit of either Algebra II, geometry, or the equivalent. If the applicant is deficient in one or more of these high school prerequisites, a counselor at Virginia Western can recommend appropriate college courses that can be substituted for the high school courses.
2. Applicants to the nursing program are strongly encouraged to meet with a counselor prior to enrollment in any course included in the nursing program or in any course to correct an academic deficiency.

3. The applicant's high school grade point average (GPA) must be at least 2.0. If the applicant has been to college, the applicant's college GPA must also be at least 2.0. High school graduates and GED holders who earned less than a 2.0 GPA during high school will be considered for admission if they have generated a college GPA of 2.0 or above based on 12 semester college credit hours within a twelve month period.
4. Applications for the 1998 class will be accepted beginning May 1, 1997 and must be completed by no later than April 1, 1998. Should spaces be available, later applications will be considered. A complete application includes: an application to the college, official transcripts from all high schools and colleges attended, records or transcripts showing completion of a high school diploma or GED, a 1998 Nursing Application Form, and a Nursing Admissions Advising Form. Nursing Application Forms are available in the Admissions Office and the Health Technology Division Office. The Nursing Admissions Advising Form must be completed during a meeting with a counselor. An interview with the Nursing Program Head may also be required if the advising session with a counselor indicates a need for further interview. After April 1, a Nursing Admissions Committee will review all completed applications. Applicants who are selected to the program will receive a letter of acceptance in May.

**Admission Priorities:** When the applications are reviewed in April, priority will be given to applicants with a G.P.A. of 2.5 or higher who have the strongest academic record and who have either already completed all high school prerequisites or anticipate completion of the missing prerequisites before summer 1998. When admission must be limited because the number of applicants exceeds available space, priority shall be given to all qualified applicants as follows: (1) residents of the political subdivisions supporting the college, followed by (2) other Virginia residents, (3) residents of other states, finally (4) international students with student or diplomatic visas.

**Nursing Support Courses:** The nursing program is an educationally challenging program. Some students prefer to spread out their workload by completing support courses such as psychology, microbiology, and anatomy and physiology before beginning the nursing program. Although it is permissible to take support courses before starting the program, it should be understood that support courses are not treated as prerequisites for admission to the nursing program and the Nursing Admissions Committee does not give admissions priority to students who have completed support courses.

**Essential Nursing Program Functions:** To successfully complete the clinical component of the Program, the student must be able to perform all of the essential functions of a clinical nurse:

1. Communicate satisfactorily with clients, physicians, peers, family members and the health care team.
2. See and hear adequately to note slight changes in the client's condition.
3. Hear adequately to perceive and interpret various equipment signals.
4. See adequately to read monitors in order to correctly interpret data on monitor.
5. Stand and/or walk six (6) to eight (8) hours/day.
6. Walk rapidly for a prolonged period from one area to another.
7. Bend or squat frequently.
8. Assist in lifting or moving clients of all age groups and weights.
9. Demonstrate adequate eye/hand coordination for dexterity in manipulation of equipment.
10. Use hands for grasping, pushing, pulling and fine manipulation.
11. Work with arms fully extended overhead for short periods.
12. Manage care of a client in an elevated hospital bed or stretcher, including one-man CPR when necessary.
13. Able to differentiate the color spectrum for color coding of charts and monitoring equipment.
14. Possess the visual acuity to correctly read handwritten orders, medication records, chart contents, and provide safety for clients and visitors.

Despite the foregoing, a qualified person with a disability who can perform these essential functions with reasonable accommodation will be considered for admission along with other qualified applicants.

**Clinical Environment:** The student should realize that student nurses are, by nature of the profession, exposed regularly to highly stressful and demanding situations, combative and difficult clients, and organizational and time pressures in a variety of client care settings.

**Student Responsibilities After Acceptance Into The Program:**

1. Admission is contingent upon a satisfactory medical examination, CPR certification and malpractice insurance. All documentation must be returned to the Nursing Program Head in the Health Technology Division no later than August 15 or the student will be dropped from the program unless there are extenuating circumstances (i.e. late admission). The physical examination must include evidence of Rubella screen, and/or vaccine, PPD skin test (or chest x-ray). Synthetic Hepatitis B vaccination series is required. Random drug and alcohol screening may be required.
2. All students admitted to the Nursing Program must attend a two-day nursing orientation during the summer semester. The Nursing faculty will conduct Fall Semester advising during this time and students will register for their classes. Tuition payment will be according to College guidelines for Fall Semester.
3. To keep Nursing Program acceptance in good standing, students must maintain a C in Natural Science Program requirements (NAS 185, BIO 141 and BIO 142).
4. NUR 135 (Drug Dosage) is strongly recommended in the summer session preceding admission to increase the potential for success in the program.
5. Provide transportation to and from agencies utilized for clinical experience.
6. Purchase uniforms and accessories.
7. Purchase lab supplies.

**Advanced Placement for LPNs:** For LPNs seeking the AAS in Nursing, there are two options for advanced placement credit.

**OPTION 1 (Credit for NUR 121)**

LPNs who have graduated from an approved practical nursing program, are currently licensed in the Commonwealth of Virginia and have completed this education and/or practiced within the past five years may apply for credit-for-experience. After acceptance into the Nursing Program, the student will enroll in NUR 121, take the NLN Mobility test (at the student's expense) and take the appropriate college challenge examinations on nursing skills and dosage calculations. On passing these examinations, the student will drop NUR 121 (10 credits) and register for NUR 199 (3 credits). On successful completion of NUR 199, the LPN will be awarded credit for NUR 121.

**OPTION 2 (Credit for NUR 121 and NUR 122)**

LPNs who have graduated from an approved practical nursing program, are currently licensed in the Commonwealth of Virginia and have completed this education and/or practiced within the past five years may apply for credit-for-prior-experience for both NUR 121 and NUR 122. The LPN will be awarded credit for both NUR 121 and NUR 122 upon completion of the following courses: BIO 141, BIO 142, NAS 185, ENG 101 (or ENG 111), NUR 135 (or the challenge exam) and NUR 115 (Note: Requirement to take NUR 115 is passage of NLN Mobility test.)

**Readmission:**

1. Students who meet the readmission criteria set forth in the Nursing Program Handbook may request readmission to the Nursing Program. Requests should be directed in writing to the Program Head of Nursing as soon as the student has made the

**NURSING CONT'D**

decision to reapply. Requests should be made prior to February 15 for Fall Semester and July 15 for Spring Semester.

- Readmission is not automatic. Criteria to be considered when a student applies for readmission are outlined in the Nursing Program Handbook which is provided upon admission to the Program.

**Retention Policies:** A complete statement of these policies is contained in the **Nursing Program Handbook** which is provided upon admission to the Program.

Successful completion of the program requires the student to maintain a grade of C or better in all nursing and natural science courses and a satisfactory evaluation in all clinical components.

**Transfer to Baccalaureate Degree Program:**

- Graduates of the VWCC Nursing Program may be eligible to apply for admission with advanced placement to Radford University or other colleges offering a baccalaureate degree in nursing.
- Students who are planning to transfer to a baccalaureate degree program following the A.A.S. degree are advised to take appropriate college transfer courses.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
BIO 141	Human Anatomy and Physiology I	3	2	4
ENG <sup>1</sup> 111	College Composition I (or ENG 101)	3	0	3
NUR <sup>3,4</sup> 121	Nursing Fundamentals I	7	3-L 6-C	10
STD 100	Orientation Total	<u>1</u> 14	<u>0</u> 11	<u>1</u> 18
<b>Second Semester</b>				
BIO 142	Human Anatomy and Physiology II	3	2	4
NAS 185	Microbiology	3	2	4
NUR <sup>4</sup> 122	Nursing Fundamentals II Total	<u>6</u> 12	<u>12-C</u> 16	<u>10</u> 18
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
IST 113	Computers & Information Systems	1	0	1
NUR <sup>4</sup> 221	Second Level Nursing Principles and Concepts I	6	12-C	10
PSY 201	Intro. to Psychology I	3	0	3
SPD <sup>1</sup> 100	Public Speaking (or SPD 105 or ENG 105) Total	<u>3</u> 13	<u>0</u> 12	<u>3</u> 17
<b>Fourth Semester</b>				
NUR <sup>4</sup> 222	Second Level Nursing Principles and Concepts II	6	12-C	10
PSY 215	Abnormal Psychology	3	0	3
E <sup>2</sup>	Elective Total	<u>3</u> 12	<u>0</u> 12	<u>3</u> 16
Total Minimum Credits for Degree				69

<sup>1</sup> ENG 111 & SPD 100 are recommended for students planning to transfer to a baccalaureate degree program. ENG 101 and 102 will not transfer.

<sup>2</sup> ENG 112 is recommended for students planning to transfer to a baccalaureate degree program.

<sup>3</sup> Includes instruction in fundamental mathematical skills.

<sup>4</sup> Health and Wellness are an integral part of the Nursing Curriculum. Health and disease, health promotion, preventive behavior, nutrition and community health are all addressed within the curriculum. NUR 121, NUR 122, NUR 221 and NUR 222 already emphasize wellness and health.

## OCCUPATIONAL SAFETY

## OFFICE TECHNOLOGY

**Award:** Career Studies (011)

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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
FIR 111	Hazardous Materials	3	0	3
FIR 117	Industrial Fire Protection	3	0	3
HLT 106	First Aid and CPR	3	0	2
SAF 120	Safety & Health Standard: Regulations and Codes	3	0	3
SAF 126	Prin. of Industrial Safety	3	0	3
SAF 131	Materials Handling, Machinery, Handtools and Control I	3	0	3
SAF 140	Intro. to Industrial Hygiene	3	0	3
SAF 215	Industrial Sound and Noise	<u>2</u>	<u>2</u>	<u>3</u>
	<b>Total</b>	<b>23</b>	<b>2</b>	<b>23</b>
<b>Total Minimum Credits for Certificate</b>				<b>23</b>

**Award:** 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 office technology.

**Curriculum Admission Guidelines:** Student must meet the general requirements for admission to the college. Prerequisites: Typing speed of 45 wpm.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
AST 140	Introduction to Windows	1	0	1
AST 141	Word Processing I (Microsoft Word)	3	0	3
AST 205	Business Communications	3	0	3
AST 243	Office Administration I	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>10</b>	<b>0</b>	<b>10</b>

### Second Semester

AST 232	Microcomputer Office Applications	3	0	3
AST 238	Advanced Word Processing	3	0	3
AST 244	Office Administration II	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>0</b>	<b>9</b>

### Third Semester

AST 236	Specialized Software Applications	3	0	3
AST 240	Machine Transcription	3	0	3
AST 253	Advanced Desktop Publishing I (PageMaker)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>0</b>	<b>9</b>

**Total Minimum Credits for Certificate** 28

## PRACTICAL NURSING

**Award:** Certificate (157)

See Also: Nursing, Associate of Applied Science

**Purpose:** The certificate program in Practical Nursing is designed to prepare students for a career as a Licensed Professional Nurse (LPN). The program is designed as a jointly affiliated dual enrollment program, serving qualified high school seniors as well as adults interested in practical nursing as a career. The program will provide instruction leading to licensure as a practical nurse; preparing qualified students to meet the health care needs of the community through the provision of quality nursing care within the scope of practice of practical nursing, as defined by the Virginia Board of Nursing. Graduates of this program earn a Certificate in Practical Nursing and will be eligible to take the NCLEX-PN examination.

**NOTE:** Individuals who have a felony or misdemeanor conviction may not be allowed to write the practical nursing licensing exam. This decision is made by the State Board of Nursing. For questions regarding this issue, call Virginia Board of Nursing, Richmond, Virginia (804 662-9909).

**Accreditation:** This program will be offered pending Phase II approval by the Virginia Board of Nursing.

**Occupational Objective:** Employment is anticipated in nursing homes, hospices, medical offices and clinics, and both acute and long-term care facilities.

**Curriculum Admission Guidelines and Procedure For the Class of 1998:** The Program enrolls students once a year in September. While applications are accepted at any time from October through March, to be eligible for admission in any year, the application packet must be completed by March 1 (pending State Board approval). Applications may be accepted after this date on a space available basis.

Qualified applicants are considered without regard to race, color, gender, age, religion, disability, national origin, or other non-merit factors.

Admissions requirements:

1. The applicant must be
  - a) a rising high school senior or
  - b) a graduate from an accredited high school or
  - c) holder of a GED (battery score of greater than 45).
2. Required high school courses: biology and Algebra I.
3. Recommended high school elective courses: chemistry and Algebra II, Geometry, or equivalent.
4. A scholastic or collegiate GPA of 2.0.
5. Completion of the Practical Nursing Aptitude Examination (at the student's expense).

6. Attendance at a personal interview demonstrating satisfactory oral and written communication skills may be required.

Applicants interested in admission to the program must meet the above admissions requirements and have a completed application packet including a completed application, official high school or college transcript and letters of reference. Requests for application forms and information may be addressed to:

Salem High School, VWCC-Salem School of Practical Nursing, 400 Spartan Drive, Salem, VA 24153, (540) 387-2437

or

Ms. Pamela Woody, Information Specialist for Health Technology Programs, Virginia Western Community College, P.O. Box 14007, Roanoke, VA 24038, (540) 857-7307.

**Admission Priorities:** When admission must be limited because the number of applicants exceeds available space, priority shall be given to all qualified applicants as follows: (1) rising high school seniors, followed by adults who are (2) residents of the political subdivisions supporting the college, (3) other Virginia residents, (4) residents of other states, and finally (5) international students with student or diplomatic visas.

**Essential Nursing Program Functions:** To successfully complete the clinical component of the Program, the student must be able to perform all of the essential functions of a clinical nurse:

1. Communicate satisfactorily with clients, physicians, peers, family members and the health care team.
2. See and hear adequately to note slight changes in the client's condition.
3. Hear adequately to perceive and interpret various equipment signals.
4. See adequately to read monitors in order to correctly interpret data on monitor.
5. Stand and/or walk six (6) to eight (8) hours/day.
6. Walk rapidly for a prolonged period from one area to another.
7. Bend or squat frequently.
8. Assist in lifting or moving clients of all age groups and weights.
9. Demonstrate adequate eye/hand coordination for dexterity in manipulation of equipment.
10. Use hands for grasping, pushing, pulling and fine manipulation.
11. Work with arms fully extended overhead for short periods.
12. Manage care of a client in an elevated hospital bed or stretcher, including one-man CPR when necessary.
13. Able to differentiate the color spectrum for color coding of charts and monitoring equipment.

14. Possess the visual acuity to correctly read handwritten orders, medication records, chart contents, and provide safety for clients and visitors.

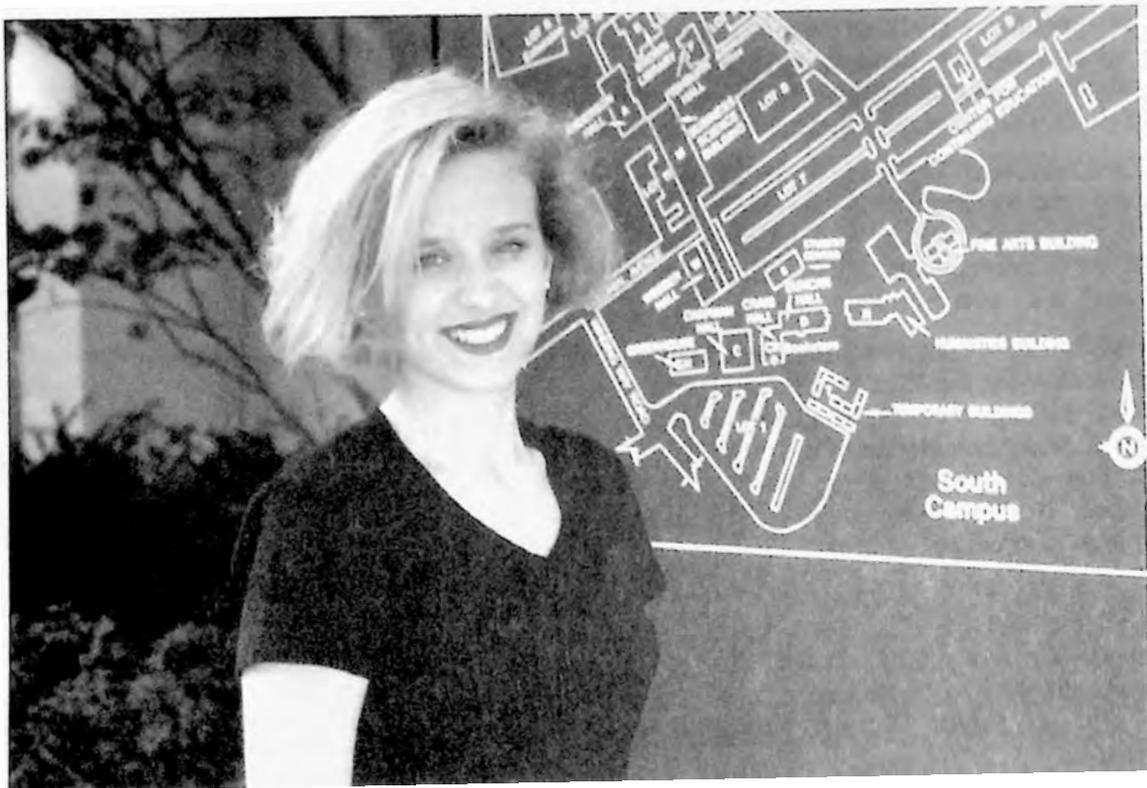
Despite the foregoing, a qualified person with a disability who can perform these essential functions with reasonable accommodation will be considered for admission along with other qualified applicants.

**Clinical Environment:** The student should realize that student nurses are, by nature of the profession, exposed regularly to highly stressful and demanding situations, combative and difficult clients, and organizational and time pressures in a variety of client care settings.

**Retention Policies:** A complete statement of these policies is contained in the **Practical Nursing Program Handbook** which is provided upon admission to the Program. Successful completion of the program requires the student to maintain a grade of C or better in all nursing and natural science courses and a satisfactory evaluation in all clinical components.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Year Curriculum (Salem High School)</b>				
<b>First Semester (August - January)</b>				
BIO 20	Anatomy & Physiology	2	3	3
HLT 130	Nutrition	1	0	1
PNE 141	Nursing Skills I	2	3	3
PNE 145	Trends in Practical Nursing	1	0	1
PNE 174	Applied Pharmacology for Nurses	<u>0</u>	<u>3</u>	<u>1</u>
	<b>Total</b>	<b>6</b>	<b>9</b>	<b>9</b>
<b>Second Semester (January - June)</b>				
PNE 142	Nursing Skills II	2	3	3
PNE 151	Medical-Surgical Nursing I	3	3	4
PNE <sup>1</sup> 156	Nursing Across the Life Span	<u>4</u>	<u>0</u>	<u>4</u>
	<b>Total</b>	<b>9</b>	<b>6</b>	<b>11</b>
<b>Second Year Curriculum (Virginia Western)</b>				
<b>Third Semester</b>				
HLT 105	Cardiopulmonary Resuscitation	1	0	1
PNE 181	Clinical Experience I	0	15	5
PNE 135	Maternal and Child Health Nursing	4	3	5
PSY 201	Intro. to Psychology I	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>9</b>	<b>18</b>	<b>15</b>
<b>Fourth Semester</b>				
ENG 111	College Composition	3	0	3
IST 113	Computers & Info Systems	1	0	1
PNE 158	Mental Health & Psychiatric Nursing	2	0	2
PNE 182	Clinical Experience II	0	18	6
SPD 100	Prin. of Public Speaking	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>18</b>	<b>15</b>
<b>Total Minimum Credits for the Certificate</b>				<b>50</b>

<sup>1</sup> Includes Gerontological Nursing



# RADIO AND TELEVISION PRODUCTION

## ELECTRONIC MEDIA PRODUCTION EMPHASIS

**Award:** Associate in Applied Science (965)

**Purpose:** The Electronic Media Production curriculum is designed to prepare students for professional careers at radio and television stations, independent audio and video production houses, corporate and educational production departments, or in related communication industries such as cable television companies and advertising agencies. The curriculum has strong emphasis in electronic media production and writing. Production courses utilize hands-on teaching methods and are taught in the program's audio/video production facilities located in Chapman Hall on Virginia Western's South Campus. Upon graduation the student may also transfer curriculum credits to a four year university to attain a bachelor's degree in mass communication, electronic journalism, advertising, or public relations.

**Occupational Objectives:** Broadcast, corporate, and educational career opportunities as video producer/director, videotape editor, videographer, script/copy writer, or audio producer/director; broadcast career opportunities as disc jockey, commercial producer, traffic director, or programming assistant; advertising agency assistant or production coordinator.

**Radford University Bachelor Degree Program:** As a result of an articulation agreement with Radford University, any student who completes the Associate in Applied Science (AAS) degree in Radio and Television Production Technology, with a minimum grade point average of 2.5, will be granted admission to the Radford University Bachelor of Bachelor of Science (BS) degree in Media Studies offered on the Virginia Western Community College campus in Roanoke.

**Curriculum Admission Guidelines:** Proficiency in high school English and mathematics (1 unit of Algebra). Proficiency in keyboarding skills is also required (high school or college keyboarding). It is recommended that applicants have a personal interview with the electronic media production faculty to discuss their educational goals and occupational objectives. Developmental courses may be required for students with deficiencies in English and Mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
BCS 110	Fundamentals of Video Production	3	3	4
BCS 116	Electronic Media Writing	3	0	3
BCS 140	Introduction to Mass Media	3	0	3
ENG 111	College Composition I	3	0	3
IST 117	Intro. to Microcomputer Software	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>
<b>Second Semester</b>				
BCS 115	Audio Production for Electronic Media	3	3	4
BCS 117	Electronic Journalism	3	0	3
BCS 125	Production Design for Video	2	3	3
BUS 100	Intro. to Business (or MKT 100)	3	0	3
E <sup>1</sup>	Elective (ENG 112 recommended for transfer)	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14</b>	<b>6</b>	<b>16</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
BCS <sup>4</sup> 130	Media Performance	2	3	3
BCS 228	Electronic Field Reporting and Production	2	6	4
BCS 247	Electronic Media Advertising	3	0	3
HLT/PED <sup>5</sup>	Health/PE	1-2	0	1-2
MTH 120	Intro. to Mathematics (or MTH 151 <sup>3</sup> )	3	0	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>14-15</b>	<b>9</b>	<b>17-18</b>
<b>Fourth Semester</b>				
BCS 230	Advanced Video Production	2	6	4
BCS 235	Electronic Media Mgmt.	3	0	3
BCS 290	Electronic Media Internship	0	10	2
HLT/PED	Health or Physical Ed.	1-2	0	1-2
SPD 151	Film Appreciation I (or SPD 152 or PHT 101)	3	0	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12-13</b>	<b>16</b>	<b>16-17</b>
<b>Total Minimum Credits for Degree</b>				<b>66</b>

<sup>1</sup> ENG 112 is recommended for students planning to transfer to a baccalaureate degree program.

<sup>2</sup> A two semester sequence is recommended for students planning to transfer to a baccalaureate degree program.

<sup>3</sup> MTH 151 Mathematics for the Liberal Arts I is recommended for students planning to transfer to a baccalaureate degree program.

<sup>4</sup> This course develops oral communication competencies required in the college's general education goals.

<sup>5</sup> Two credits of health (HLT) or physical education (PED) are required of all students.

## RADIOGRAPHY

**Award:** Associate in Applied Science (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 one-semester internship, the student is eligible to apply 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.

**Occupational Objectives:** Graduates may apply for employment in hospitals, education, industry, clinics, government agencies, physicians 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 with a C or better in each
3. Completion of three units of high school or college mathematics - Algebra I, II and Geometry or equivalent with a grade of C or better in each
4. Current high school or college grade point average 2.0 or above

**Essential Program Functions:** To successfully complete the clinical component of the Program, the student must be able to perform certain tasks requiring specific physical abilities. The candidate must be able to perform all of the following essential functions of a clinical radiographer:

1. Communicate satisfactorily with the patients, physicians, peers, and ancillary staff.
2. See and hear adequately to note slight changes in patient condition.
3. Hear adequately to perceive and interpret various equipment signals.
4. See adequately to read emergency monitor data.
5. Work with arms fully extended overhead.
6. Lift and move 50 pounds at waist level or below waist level.
7. Stand in place for extended periods of time (30 minutes to 3 hours).
8. Walk rapidly for a prolonged period from one area to another (20-100 feet) carrying up to 25 pounds.

Despite the foregoing, a qualified person with a disability who can perform these essential functions with reasonable accommodation will be considered for admission along with other qualified applicants.

**Clinical Environment:** The candidate should realize that student radiographers may be, by nature of the profession, exposed to: ionizing radiation, infectious diseases, and combative/difficult patients.

**Admission Priorities:** When admission must be limited because the number of applicants exceeds available space, priority shall be given to all qualified applicants as follows: (1) residents of the political subdivisions supporting the college, followed by (2) other Virginia residents, (3) residents of other states, finally (4) international students with student or diplomatic visas.

**Admission Procedure:** Upon completing an application to the college and a 1998 Radiography Application, students seeking admission to the Radiography Program must have transcripts from all schools and colleges attended forwarded to the College. Applicants must see the Health Technology Information Specialist for information, evaluation, and advising regarding the program. If the student meets all requirements for the Radiography Program, the specialist will complete a Radiography Admissions Advising Form.

Upon receipt of the student's completed file by the Program Head, the applicant will be contacted for an appointment. Appointments will begin November 1. Early application is encouraged. Applicants whose credentials are completed by February 15 may be considered for early admission. After February 15, students will be considered on a space available basis. 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.

**Advanced Placement:** Advanced placement is available for radiographers who wish to pursue an associate degree and for transfer students from other radiography programs. Transfer students must furnish their transcripts, program curriculum and a letter of reference from the Program Director for consideration into the Radiography Program. 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 at least one month prior to the beginning of the semester they wish to be considered for readmission.

**Student Responsibilities:** All students admitted to the Radiography Program must attend radiography orientation, register for all classes, and pay tuition prior to August 1.

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, tuberculin skin test (or chest x-ray), and Hepatitis B vaccination.

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

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 requires the student to maintain a C or better in all radiography and clinical courses. A complete statement of all the above policies is outlined in the Radiography Handbook which is available in the Office of the Division of Health Technology.

Upon successful completion of the radiography program, students can make application to a wide variety of imaging modality specialty programs; ultrasonography, radiation therapy, vascular-interventional, nuclear medicine or bachelors degree programs.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
HLT <sup>1</sup> 143	Medical Terminology I	3	0	3
NAS 171	Human Anatomy and Physiology I	3	3	4
RAD <sup>1</sup> 121	Radiographic Procedures I	3	3	4
RAD 131	Elemen. Clinical Proc. I	0	15-C	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>10</b>	<b>21</b>	<b>15</b>
<b>Second Semester</b>				
RAD <sup>4</sup> 106	Intro. to Radiologic Science	2	0	2
RAD 132	Elemen. Clinical Proc. II	0	15-C	3
RAD <sup>1</sup> 221	Radiographic Procedures II	3	3	4
RAD 225	Specialized Patient Care Procedures	2	0	2
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>10</b>	<b>18</b>	<b>14</b>
<b>Summer Semester I</b>				
RAD 190	Coordinated Practice	0	16-C	3
RAD 205	Radiation Protection & Radiobiology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>3</b>	<b>16</b>	<b>6</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ENG <sup>3</sup> 101	Practical Writing I (or ENG 111)	3	0	3
IST 113	Computers and Info. Sys.	1	0	1
RAD <sup>4</sup> 111	Radiologic Science I	3	3	4
RAD 231	Advanced Clinical Procedures I	0	25-C	5
RAD 240	Radiographic Pathology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>10</b>	<b>28</b>	<b>16</b>
<b>Fourth Semester</b>				
ENG <sup>3</sup> 102	Practical Writing II (or ENG 112)	3	0	3
RAD 112	Radiologic Science II	3	3	4
RAD 232	Advanced Clinical Procedures II	0	25-C	5
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>9</b>	<b>28</b>	<b>15</b>
<b>Summer Semester II</b>				
RAD 215	Correlated Radiographic Theory	2	0	2
RAD 290	Coordinated Internship	<u>0</u>	<u>21-C</u>	<u>4</u>
	<b>Total</b>	<b>2</b>	<b>21</b>	<b>6</b>
<b>Total Minimum Credits for Degree</b>				<b>72</b>

<sup>1</sup> Health and Wellness are an integral part of the Radiography Curriculum.

<sup>2</sup> A two-semester sequence is recommended.

<sup>3</sup> ENG 111-112 (College Composition, I-II) with SPD 100 is recommended for students planning to transfer to a baccalaureate degree program.

<sup>4</sup> Includes instruction in fundamental mathematics skills.

## RAILROAD OPERATIONS

**Award:** Associate in Applied Science (715)

**Purpose:** This degree program is designed primarily for students who desire to pursue business or technical careers in the modern railroad industry. The curriculum general education core has been planned to develop and enhance crucial intellectual skills such as critical thinking, writing, speaking and mathematical reasoning. These skills are universally needed in modern business and industrial settings. The general education classes have been chosen to maximize university transfer options for the student.

The student will gain an understanding of the history, structure, regulations, operating practices and employment opportunities of the railroad industry through a sequence of four classes. Business and technical electives will enable the student to acquire specific vocational competencies. These elective courses should be carefully chosen with the help of a curriculum advisor to assure that they are suitable to the student's background and career goals. The curriculum will prepare the graduate to understand better and adapt more readily to the challenge of working in organizations undergoing continuous technological change.

**Career Objectives:** Transportation--Dispatcher, Crew Caller, Clerk, Conductor, etc.; Engineering Services--Signalman, Electronic Technician, Work Equipment Repairman, Towerman, etc.; Mechanical (Motive Power)--Clerk, Electrician, Machinist/Mechanic, etc.

**Curriculum Admission Guidelines:** 4 units of English; 3 units of mathematics (algebra I, II and geometry); 1 unit of laboratory science; and one unit of social science. Developmental courses may be recommended for students with deficiencies in English, reading, and/or mathematics.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
HLT/PED <sup>1</sup>	Health or Physical Education	1	0	1
MTH 166	Pre-Calculus with Trigonometry	5	0	5
RRO 200	History of Railroading	3	0	3
STD 100	Orientation	1	0	1
E <sup>2</sup>	Business/Technical Elective	<u>3</u>	<u>3</u>	<u>4</u>
Total		16	3	17
<b>Second Semester</b>				
HLT/PED <sup>1</sup>	Health or Physical Education I		0	1
IST 117	Intro. to Microcomputer Software	3	0	3
MTH 157	Elementary Statistics	3	0	3
RRO 105	Railroad Technical Careers	3	0	3
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>2</sup>	Business/Technical Elective	<u>3</u>	<u>3</u>	<u>4</u>
Total		16	3	17
<b>Third Semester</b>				
BUS 100	Introduction to Business	3	0	3
ECO 201	Principles of Economics I--Macroeconomics	3	0	3
PHY 201	General College Physics I	3	3	4
RRO 210	Railroad Operations	3	0	3
E <sup>2</sup>	Business/Techni. Elective	<u>3</u>	<u>0-3</u>	<u>3-4</u>
Total		15	3-6	16-17
<b>Fourth Semester</b>				
ECO <sup>3</sup> 202	Principles of Economics II	3	0	3
PHI 101	Introduction to Philosophy I	3	0	3
RRO 110	Railroad Safety, Quality and Environment	3	0	3
E <sup>2</sup>	Business/Technical Elective	3	0-3	3-4
E <sup>4</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
Total		15	0-3	15-16
Total Minimum Credits for Degree				65

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students.

<sup>2</sup> Student must consult with curriculum advisor to select business and technical electives.

<sup>3</sup> A social science elective may be substituted for ECO 202

<sup>4</sup> Elective should be chosen from discipline outside of student's business or technical field.

**REAL ESTATE**

**Award:** Career Studies (070)

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

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First Semester</b>				
REA 100	Principles of Real Estate	4	0	4
REA 105	Real Estate Mathematics	<u>3</u>	<u>0</u>	<u>3</u>
	Total	7	0	7
<b>Second Semester</b>				
REA 215	Real Estate Brokerage	3	0	3
REA 216	Real Estate Appraisal	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Third Semester</b>				
REA 217	Real Estate Finance	3	0	3
REA 245	Real Estate Law (or BUS 241)	3	0	3
E <sup>1</sup>	Real Estate Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	9	0	9
Total Hours Required for Career Studies Certificate				22

<sup>1</sup> Elective should be chosen from the following options:  
 REA 226, REA 246, REA 247, or REA 256.

**SCIENCE**

**Award:** Associate in Science (880)

**Purpose:** The A.S. degree in Science contains three curricular options: Science, Science with a Specialization in Computer Science, and Science with a Specialization in Health Sciences. The options are designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree program in a pre-professional or scientific program. Students preparing for a major in agriculture, biology, chemistry, pre-dentistry, forestry, geology, home economics, horticulture, pharmacy, pre-medicine, physics, science education, or pre-veterinary should complete the curricular program for Science. Students preparing for a major in computer science or mathematics should complete the Specialization in Computer Science, and students preparing for a major in a health field such as medical technology, nursing, or physical therapy should complete the Specialization in Health Sciences.

None of the curricular options are inflexible. Provided minimum state curriculum standards are satisfied, some of the graduation requirements can be adjusted when changes are needed to comply with the curriculum requirements at the transfer institution. For example, with departmental approval, pharmacy students are allowed to take less mathematics credits and more science credits than those shown in the Science curriculum guide sheet. 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 advisor 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 college or university.

**Curriculum Admission Guidelines:** 4 units of English; 3 units of college preparatory mathematics (Algebra I, Geometry and Algebra II) 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
ENG 111	College Composition I	3	0	3
HLT <sup>1</sup> 110	Concepts of Personal or Community Health (or PED elective)	2	0	2
IST 117	Intro. to Microcomputer Software (or CSC 201) <sup>8</sup>	3	0	3
MTH 163	Pre-Calculus I (or MTH 175) <sup>7</sup>	3	0	3
STD E <sup>2</sup> 100	Orientation Science Elective with Lab	1	0	1
	<b>Total</b>	<b>3</b>	<b>3</b>	<b>4</b>
		15	3	16
<b>Second Semester</b>				
ENG 112	College Composition II	3	0	3
MTH 271	Applied Calculus I (or MTH 176) <sup>7</sup>	3	0	3
E <sup>2</sup>	Science Elective with Lab.	3	3	4
E <sup>3</sup>	Humanities Elective	3	0	3
E <sup>4</sup>	Transfer Elective	3	0	3
	<b>Total</b>	<b>3</b>	<b>0</b>	<b>3</b>
		15	3	16
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HIS 121	U. S. History (or HIS 101)	3	0	3
MTH <sup>5</sup> 272	Applied Calculus II (or MTH 241)	3	0	3
E <sup>2</sup>	Science Elective with Lab.	3	3	4
E <sup>6</sup>	Social Science Elective	3	0	3
E <sup>4</sup>	Transfer Elective	3	0	3
	<b>Total</b>	<b>3</b>	<b>0</b>	<b>3</b>
		15	3	16
<b>Fourth Semester</b>				
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>2</sup>	Science Elective	2-3	0-3	3-4
E <sup>2</sup>	Science Elective with Lab.	3	3	4
E <sup>6</sup>	Social Science Elective	3	0	3
	<b>Total</b>	<b>3</b>	<b>0</b>	<b>3</b>
		11-12	3-6	13-14
<b>Total Minimum Credits for Degree</b>				<b>61</b>

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> Natural science courses must be selected from the biology, chemistry, geology, and physics courses listed on the "Approved List of Transfer Electives" on page 31.

<sup>3</sup> Humanities elective must be chosen from the "Approved List of Transfer Electives" on page 31.

<sup>4</sup> Electives must be chosen from the "Approved List of Transfer Electives" on page 31.

<sup>5</sup> Students who complete MTH 175-176 and 177-178 may substitute MTH 277 or an elective.

<sup>6</sup> A two-semester sequence of social science must be selected from the "Approved List of Transfer Electives" on the last page of the Transfer Information section.

<sup>7</sup> Students taking MTH 175-176 should consider taking MTH 177-178 as electives.

<sup>8</sup> If CSC 201 is taken in place of IST 117 one less elective is required.

**SPECIALIZATION IN COMPUTER SCIENCE**

**SPECIALIZATION IN HEALTH SCIENCES**

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
CSC 201	Computer Science I	4	0	4
ENG 111	College Composition I	3	0	3
HLT <sup>1</sup>	Health or Physical Education	1-2	0	1-2
MTH 175	Calculus of One Variable I	3	0	3
MTH 177	Introductory Linear Algebra	2	0	2
STD 100	Orientation	1	0	1
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>17-18</b>	<b>0</b>	<b>17-18</b>
<b>Second Semester</b>				
CSC 202	Computer Science II	4	0	4
ENG 112	College Composition II	3	0	3
HLT <sup>1</sup>	Health or Physical Education	1-2	0	1-2
MTH 176	Calculus of One Variable II	3	0	3
MTH 178	Topics in Analytic Geometry	2	0	2
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16-17</b>	<b>0</b>	<b>16-17</b>
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
HIS 101	History of Western Civilization (or HIS 121)	3	0	3
MTH 241	Statistics I	3	0	3
MTH 277	Vector Calculus	4	0	4
PHY 241	University Physics I (or CHM 111)	<u>3</u>	<u>3</u>	<u>4</u>
	<b>Total</b>	<b>13</b>	<b>3</b>	<b>14</b>
<b>Fourth Semester</b>				
PHY 242	University Physics II (or CHM 112)	3	3	4
SPD 100	Prin. of Public Speaking	3	0	3
E <sup>3</sup>	Elective	4	0	4
E <sup>4</sup>	Humanities Elective	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>13</b>	<b>3</b>	<b>14</b>
<b>Total Minimum Credits for Degree</b>				<b>61</b>

**Purpose:** The Health Sciences Specialization is designed for students who plan to transfer to a four-year college or university and major in a health field. Curricular needs aren't the same in every health field, so students should confer with their faculty advisor or counselor and check with the four-year institution that they plan on attending in order to identify specific requirements for the field that they are interested in pursuing.

As the result of a cooperative arrangement with Radford University, a special curricular option has been designed for students who want 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 3.2 or higher, Radford University has agreed that VWCC graduates will be accepted into Radford University's upper division nursing degree program. If the cumulative grade point average at VWCC is less than 3.2 and greater than or equal to 2.5, admission into the upper division nursing degree program at Radford will be on a competitive basis and will be dependent upon the space available. The upper division courses can be completed at the Roanoke site, located in the Education Center, Roanoke Memorial Hospitals, so it is possible to complete all of the baccalaureate degree nursing requirements without leaving the Roanoke Valley.

Students who are preparing to attend a nursing program at another college besides Radford University should check that college'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.

<sup>1</sup> Two credits of health (HLT) or physical education (PED) are required of all students. Veterans will be awarded HLT/PED credit based on military service.

<sup>2</sup> A two-semester sequence of social science must be chosen from the "Approved List of Transfer Electives" on the last page of the Transfer Information section.

<sup>3</sup> Electives must be chosen from the "Approved List of Transfer Electives" on page 31.

<sup>4</sup> A humanities elective must be chosen from the "Approved List of Transfer Electives" on page 31.

**SPECIALIZATION IN HEALTH SCIENCES  
CONT'D**
**SIGN LANGUAGE**
**Award: Career Studies (062)**

**Purpose:** The purpose is to train members of the community to communicate proficiently in American Sign Language as well as to enable them to develop an understanding of Deaf Culture. The focus is on American Sign Language vocabulary, syntax, non-manual aspects, expressive and receptive signing skills and Deaf Culture.

**Occupational Objective:** The program is designed to provide proficiency and understanding of the deaf community. Graduates will be qualified for jobs in education, community and volunteer organizations that deal with the deaf or hard of hearing. Graduates are also prepared to transfer to AAS programs designed for interpreters.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**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 Psychology	3	0	3
STD 100	Orientation	<u>1</u>	<u>0</u>	<u>1</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>

**Second Semester**

CHM 102	General Chemistry II (or CHM 112)	3	3	4
ENG 112	College Composition II	3	0	3
HLT 230	Principles of Nutrition and Human Development	3	0	3
IST 199	Microcomputer Seminar	1	0	1
MTH 152	Liberal Arts Mathematics II (or MTH 157)	3	0	3
PSY 215	Abnormal Psychology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>16</b>	<b>3</b>	<b>17</b>

**Second-Year Curriculum**
**Third Semester**

BIO 141	Human Anatomy and Physiology I	3	2	4
ENG 241	American Literature (or ENG 243)	3	0	3
PLS 211	U.S. Government (or ECO 201)	3	0	3
SOC 201	Introduction to Sociology	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>2</b>	<b>13</b>

**Fourth Semester**

BIO 142	Human Anatomy and Physiology II	3	2	4
NAS 185	Microbiology	3	2	4
PSY 235	Child Psychology (or PSY 231)	3	0	3
SPD 100	Prin. of Public Speaking	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>12</b>	<b>4</b>	<b>14</b>

**Total Minimum Credits for Degree 61**

<sup>1</sup> *Electives must be selected from the "Approved List of Transfer Electives" on page 31. Students transferring to Radford University are advised to take a fine arts course (MUS 121 or ART 101).*

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
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**First-Year Curriculum  
First Semester**

PSY 201	Introduction to Psychology	3	0	3
SCM 100	Introduction to American Sign Language	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>6</b>	<b>0</b>	<b>6</b>

**Second Semester**

SCM 105	Orientation to Deafness	3	0	3
SCM 110	Intermediate American Sign Language	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>6</b>	<b>0</b>	<b>6</b>

**Second-Year Curriculum  
Third Semester**

SCM 115	Expressive/Receptive Fingerspelling	2	0	2
SCM 200	Advanced American Sign Language	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>5</b>	<b>0</b>	<b>5</b>

**Fourth Semester**

HLT 110	Concepts of Personal & Community Health	2	0	2
SCM 211	Expressive Interpreting I	2	2	3
SCM 230	Introduction to Interpreting	<u>3</u>	<u>0</u>	<u>3</u>
	<b>Total</b>	<b>7</b>	<b>2</b>	<b>8</b>

**Total Minimum Credits for Certificate 25**

## WELDING

**Award:** 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.

Course	Title	Lec. Hrs.	Lab Hrs.	Course Credits
<b>First-Year Curriculum</b>				
<b>First Semester</b>				
DRF 161	Blueprint Reading I	1	3	2
STD 100	Orientation	1	0	1
WEL 120	Fundamentals of Welding	<u>2</u>	<u>2</u>	<u>3</u>
	Total	4	5	6
<b>Second Semester</b>				
SAF 126	Prin. of Industrial Safety	3	0	3
WEL 121	Arc Welding	<u>1</u>	<u>3</u>	<u>2</u>
	Total	4	3	5
<b>Second-Year Curriculum</b>				
<b>Third Semester</b>				
ELE 133	Practical Electricity I	2	2	3
WEL 135	Inert Gas Welding	<u>1</u>	<u>3</u>	<u>2</u>
	Total	3	5	5
<b>Fourth Semester</b>				
WEL 145	Welding Metallurgy	3	0	3
E <sup>1</sup>	Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	6	0	6
<b>Additional required courses that may be taken any semester:</b>				
ENG/SPD	English Elective	3	0	3
E <sup>1</sup>	Approved Techni. Elective	3	0	3
E <sup>1</sup>	Approved Techni. Elective	3	0	3
E <sup>2</sup>	Social Science Elective	<u>3</u>	<u>0</u>	<u>3</u>
	Total	12	0	12
<b>Total Minimum Credits for Certificate</b>				<b>34</b>

<sup>1</sup> Technical elective - requires departmental approval.

<sup>2</sup> Social science elective



## COMPUTER GUIDELINES

### VIRGINIA COMMUNITY COLLEGE SYSTEM

#### **Information Technology Student/ Patron Ethics Agreement**

As a user of the Virginia Community College System's local and wide area computer systems, I understand and agree to abide by the following ethics agreement terms. These terms govern my access to and use of the information technology applications, services and resources of the VCCS and the information they generate.

The college granted access to me as a necessary privilege in order to perform authorized functions at the college where I am currently enrolled. I will not knowingly permit use of my entrusted access control mechanism for any purposes other than those required to perform authorized functions related to my status as a student. These include logon identification, password, workstation identification, user identification, file protection keys or production read or write keys.

I will not disclose information concerning any access control mechanism unless properly authorized to do so by my enrolling college. I will not use any access mechanism that the VCCS has not expressly assigned to me.

I will treat all information maintained on the VCCS computer systems as strictly confidential and will not release information to any unauthorized person. I agree to abide by all applicable state, federal, VCCS, and college policies, procedures and standards that relate to the Information Security Policy and the Computer Ethics Guideline. I will follow all the security procedures of the VCCS computer systems and protect the data contained therein.

If I observe any incidents of non-compliance with the terms of this agreement, I am responsible for reporting them to the Information Security Officer and management of my college.

I understand that VCCNet administration, or appropriate designated college officials reserve the right without notice to limit or restrict any individual's access and to inspect, remove or otherwise alter any data, file, or system resource that may undermine the authorized use of any network computing facilities.

By acknowledging this agreement, I hereby certify that I understand the preceding terms and provisions and that I accept the responsibility of adhering to the same. I further acknowledge that should I violate this agreement, I will be subject to disciplinary action.

### Computer Ethics Guideline

Thousands of users share VCCNet computing resources. Everyone must use these resources responsibly since misuse by even a few individuals has the potential to disrupt VCCS business or the works of others. Therefore, you must exercise ethical behavior when using VCCNet resources.

State Law (Article 7.1 of Title 18.2 of the Code of Virginia) classifies damage to computer hardware or software (18.2-152.4), unauthorized examination (18.2-152.5), or unauthorized use (18.2-152.6) of computer systems as (misdemeanor) crimes. Computer fraud (18.2-152.3) and use of a computer as an instrument of forgery (18.2-152.14) can be felonies. The VCCS's internal procedures for enforcement of its policy are independent of possible prosecution under the law.

#### Definition

VCCNet resources include mainframe computers, minicomputers, microcomputers, networks, software, data, facilities and related supplies.

#### Guidelines

The following guidelines shall govern the use of all VCCNet resources:

1. You must use only those computer resources that you have the authority to use. You must not provide false or misleading information to gain access to computing resources. The VCCS may regard these actions as criminal acts and may treat them accordingly. You must not use the VCCNet resources to gain unauthorized access to computing resources of other institutions, organizations or individuals.
2. You must not authorize anyone to use your computer accounts for any reason. You are responsible for all use of your accounts. You must take all reasonable precautions, including password maintenance and file protection measures, to prevent use of your account by unauthorized persons. You must not, for example, share your password with anyone.
3. You must use your computer resources only for authorized purposes. Students or staff, for example, may not use their accounts for private consulting. You must not use your computer resources for unlawful purposes, such as the installation of fraudulently or illegally obtained software. Use of external networks connected to the VCCNet must comply with the policies and acceptable use

promulgated by the organizations responsible for those networks.

4. Other than material known to be in the public domain, you must not access, alter, copy, move or remove information, proprietary software or other files (including programs, members or subroutine libraries, data and electronic mail) without prior authorization. The college or VCCNet data trustee, security officer, appropriate college official or other responsible party may grant authorization to use electronically sorted materials in accordance with policies, copyright laws and procedures. You must not copy, distribute, or disclose third party proprietary software without prior authorization from the licensor. You must not install proprietary software on systems not properly licensed for its use.
5. You must not use any computing facility irresponsibly or needlessly affect the work of others. This includes transmitting or making accessible offensive, annoying or harassing material. This includes intentionally, recklessly, or negligently damaging systems, intentionally damaging or violating the privacy of information not belonging to you. This includes the intentional misuse of resources or allowing misuse of resources by others. This includes loading software or data from untrustworthy sources, such as free-ware, onto official systems without prior approval.
6. You should report any violation of these regulations by another individual and any information relating to a flaw or bypass of computing facility security to the Information Security Officer or the Internal Audit Department.

### **Enforcement Procedure**

1. Faculty, staff and students at the college or VCCNet facility should immediately report violations of information security policies to the local Chief Information Officer (CIO).
2. If the accused is an employee, the CIO will collect the facts of the case and identify the offender. If, in the opinion of the CIO, the alleged violation is of a serious nature, the CIO will notify the offender's supervisor. The supervisor, in conjunction with the College or System Office Human Resources Office

and the CIO, will determine the appropriate disciplinary action. Disciplinary actions may include but are not limited to:

- a. Temporary restriction of the violator's computing resource access for a fixed period of time, generally not more than six months.
  - b. Restitution for damages, materials consumed, machine time, etc. on an actual cost basis. Such restitution may include the costs associated with determining the case facts.
  - c. Disciplinary action for faculty and classified staff in accordance with the guidelines established in the State Standards of Conduct Policy.
3. In the event that a student is the offender, the accuser should notify the Dean of Student Services. The Dean, in cooperation with the CIO, will determine the appropriate disciplinary actions which may include but are not limited to:
    - a. Temporary restriction of the violator's computing resource access for a fixed period of time, generally, not more than six months.
    - b. Retribution for damages, materials consumed, machine time, etc. on an actual cost basis. Such restitution may include the costs associated with determining the case facts.
    - c. Disciplinary action for student offenders shall be in accordance with the college student standards of conduct.
  4. The College President will report any violations of state and federal law to the appropriate authorities.
  5. All formal disciplinary actions taken under the policy are grievable and the accused may pursue findings through the appropriate grievance procedure.

### **Approval**

This guideline shall remain in effect from March 31, 1995, until superseded or suspended. This guideline was approved and signed by the Chancellor of the Virginia Community College System.

## 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 business 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 developmental studies courses. These courses are designed to prepare students for college-level courses (primarily in the areas of English and mathematics). The credits earned in these courses are not applicable toward associate degree programs. These courses are graded on a Satisfactory/Unsatisfactory basis and they do not effect students' grade point average. Students enrolled in developmental courses who do not achieve a Satisfactory (S) grade should re-enroll in order to complete all course objectives. Students ordinarily may repeat a course only once (refer to the policy on Repeating a Course).

Courses numbered 10-99 are basic occupational courses for 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 or certificate, and courses numbered 200-299 are sophomore courses applicable toward an associate degree or certificate.

#### 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.

## 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 listed as 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 division chair and the Dean of Academic and Student Affairs.

### 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 211 PRINCIPLES OF ACCOUNTING I (3-4 CR.)** Corequisite: ACC 213. Presents accounting principles and their application to various businesses. Covers the accounting cycle, income determination, and financial reporting. Studies services, merchandising, and includes internal controls. Lecture 3-4 hours. Total 3-4 hours per week.

**ACC 212 PRINCIPLES OF ACCOUNTING II (3-4 CR.)** Corequisite: ACC 214. Continues Accounting Principles 211 with emphasis on the application to partnerships, corporations and the study of financial analysis. Includes an introduction to cost and managerial accounting. Lecture 3-4 hours. Total 3-4 hours per week.

**ACC 213 PRINCIPLES OF ACCOUNTING LABORATORY I (1 CR.)** Provides problem-solving experiences to supplement instruction in ACC 211. Should be taken concurrently with ACC 211, in appropriate curricula. Laboratory 2 hours per week.

**ACC 214 PRINCIPLES OF ACCOUNTING LABORATORY II (1 CR.)** Provides problem-solving experience to supplement instruction in ACC 212. Should be taken concurrently with ACC 212, in appropriate curricula. Laboratory 2 hours per week.

**ACC 215 COMPUTERIZED ACCOUNTING (3-4 CR.)** Prerequisite: ACC 212 or equivalent. 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. Lecture 3-4 hours per week.

**ACC 221 INTERMEDIATE ACCOUNTING I (3-4 CR.)** Prerequisite: ACC 212 or equivalent. Covers accounting principles and theory, including a review of the accounting cycle and accounting for current assets, current liabilities and investments. Introduces various accounting approaches and demonstrates the effect of these approaches on the financial statement users. Lecture 3-4 hours per week.

**ACC 222 INTERMEDIATE ACCOUNTING II (3-4 CR.)** Prerequisite: ACC 221 or equivalent. Continues accounting principles and theory with emphasis on accounting for fixed assets, intangibles, corporate capital structure, long-term liabilities, and investments. Lecture 3-4 hours per week.

**ACC 225 MANAGERIAL ACCOUNTING (3 CR.)** Prerequisite: ACC 212 or equivalent. 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 or equivalent. Studies cost-accounting methods and reporting as applied to job order, process, and standard cost accounting systems. Includes cost control and other topics. Lecture 3 hours per week.

**ACC 241 AUDITING I (3 CR.)** Prerequisite or co-requisite: ACC 222 or equivalent. 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 261 PRINCIPLES OF FEDERAL TAXATION I (3 CR.)** Presents the study of federal taxation as it relates to individuals and related entities. Includes tax planning, compliance and reporting. Lecture 3 hours per week.

### **ADMINISTRATION OF JUSTICE (ADJ)**

#### **Required Courses:**

**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 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 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 the Commonwealth of Virginia. Lecture 3 hours per week.

**ADJ 130 INTRODUCTION TO CRIMINAL LAW (3 CR.)** Surveys the general principles of American criminal law, the elements of major crimes, and the basic steps of prosecution procedure. 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.

#### **Elective Courses:**

#### **ADJ 115 PATROL PROCEDURES (3 CR.)**

Describes, instructs and evaluates street-level procedures commonly employed by patrol officers in everyday law enforcement operations. 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 128 PATROL ADMINISTRATION AND OPERATIONS (3 CR.)**

Studies the goals, methods and techniques of police patrol with focus on the norms which govern work behavior in a police career. Examines the responsibilities of administrators and field supervisors of patrol in the local and state law enforcement agencies. 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 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 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.

#### **ADJ 289 COMPARATIVE SYSTEMS OF**

**CRIMINAL JUSTICE (3 CR.)** Surveys administration of justice in a variety of nations, comparing workings and results of different law enforcement, judicial, and correctional components. Lecture 3 hours per week.

#### **ADMINISTRATIVE SUPPORT TECHNOLOGY (AST)**

**AST 101 KEYBOARDING I (3-4 CR.)** Teaches the alpha/numeric keyboard with emphasis on correct techniques, speed, and accuracy. Teaches formatting of basic personal and business correspondence, reports, and tabulation. Lecture 3-4 hours per week.

**AST 102 KEYBOARDING II (3-4 CR.)** Prerequisite AST 101. Develops keyboarding and document production skills with emphasis on preparation of specialized business documents. Continues skill-building for speed and accuracy. Lecture 3-4 hours per week.

#### **AST 113 KEYBOARDING FOR SPEED AND**

**ACCURACY (1 CR.)** Prerequisite AST 101 or equivalent. Focuses on improving keyboarding speed and accuracy through assigned exercises that diagnose problem areas. Emphasizes increased productivity through improved speed and accuracy. Lecture 1 hour per week.

#### **AST 114 KEYBOARDING FOR INFORMATION PROCESSING (1-2 CR.)**

Teaches the alphabetic and numeric keys: develops correct techniques and competency in the use of computer keyboards. May include basic correspondence and report formats. Lecture 1-2 hours per week.

#### **AST 119 SHORTHAND I (3-4 CR.)**

Prerequisite AST 101. Focuses on shorthand theory, reading and writing skills, development of general business vocabularies, word usage, and general business dictation. Lecture 3-4 hours per week.

#### **AST 120 SHORTHAND II (3-4 CR.)**

Prerequisite: AST 119. Develops speed in typical business dictation, with emphasis on transcription accuracy from shorthand notes. Lecture 3-4 hours per week.

**AST 140 INTRODUCTION TO WINDOWS**

(1-2 CR.) Introduces students to Windows and provides basic concepts and commands necessary in the Windows environment. Lecture 1-2 hours per week.

**AST 141 WORD PROCESSING I (Word) (3-4 CR.)**

Prerequisite: AST 101 or equivalent. Teaches creating and editing documents, including line and page layouts, columns, fonts, search/replace, cut/paste, spell/thesaurus, and advanced editing and formatting features of word processing software.

**AST 201 KEYBOARDING III (3-4 CR.)**

Prerequisite: AST 102. A laboratory co-requisite (AST 202) may be required. Develops decision-making skills, speed, and accuracy in production keying. Applies word processing skills in creating specialized business documents. Lecture 3-4 hours per week.

**AST 205 BUSINESS COMMUNICATIONS (3 CR.)**

Teaches techniques of oral and written communications. Emphasizes writing and presenting business-related materials. Lecture 3 hours per week.

**AST 213 LEGAL KEYBOARDING (3-4 CR.)**

Prerequisite: AST 102. Develops decision-making skills, speed, and accuracy in preparation of legal documents with emphasis on meeting office requirements.

**AST 215 MEDICAL KEYBOARDING (3-4 CR.)**

Prerequisite: AST 102. Develops decision-making skills, speed, and accuracy in preparation of medical documents with emphasis on meeting office requirements. Lecture 3-4 hours per week.

**AST 232 MICROCOMPUTER OFFICE**

**APPLICATIONS (3-4 CR.)** Prerequisite: AST 101 and AST 141. Teaches production of business documents using word processing, databases, and spreadsheets. Emphasizes document production to meet business and industry standard. Lecture 3-4 hours per week.

**AST 236 SPECIALIZED SOFTWARE APPLICATIONS (SPECIFY SOFTWARE) (3-4 CR.)**

Prerequisites: AST 101 or equivalent, AST 232 and 238. A laboratory co-requisite (AST 237) may be required. Teaches specialized integrated software applications on the microcomputer. Emphasizes document production to meet business and industry standards.

**AST 238 WORD PROCESSING ADVANCED OPERATIONS (3-4 CR.)**

Prerequisite: AST 141. Teaches advanced word processing features including working with merge files, macros, and graphics; develops competence in the production of complex documents. Lecture 3-4 hours per week.

**AST 240 MACHINE TRANSCRIPTION (3-4 CR.)**

Prerequisite: AST 102. Develops proficiency in the use of transcribing equipment to produce business documents. Emphasizes listening techniques, business English, and proper formatting. Includes production rate and mailable copy requirements. Lecture 3-4 hours.

**AST 243 OFFICE ADMINISTRATION I (3 CR.)**

Prerequisite AST 101. Develops an understanding of the administrative support role and the skills necessary to provide organizational and technical support in a contemporary office setting. Emphasizes the development of critical-thinking, problem-solving, and job performance skills in a business office environment. Lecture 3 hours per week.

**AST 244 OFFICE ADMINISTRATION II (3 CR.)**

Prerequisite AST 243 or equivalent. Enhances skills necessary to provide organizational and technical support in a contemporary office setting. Emphasizes administrative and supervisory role of the office professional. Includes travel and meeting planning, office budgeting and financial procedures, international issues, and career development. Lecture 3 hours per week.

**AST 245 MEDICAL MACHINE TRANSCRIPTION (3-4 CR.)**

Prerequisite AST 102 or equivalent. 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. Lecture 3-4 hours per week.

**AST 247 LEGAL MACHINE TRANSCRIPTION (3-4 CR.)**

Prerequisite AST 102 or equivalent. Develops machine transcription skills, integrating operation of transcribing equipment with understanding of legal terminology. Emphasizes dictation techniques and accurate transcription of legal documents in prescribed formats. Lecture 3-4 hours per week.

**AST 253 ADVANCED DESKTOP PUBLISHING I (Pagemaker 5.0) (3-4 CR.)**

Prerequisite AST 101 or equivalent and experience in using a word processing package. Introduces specific desktop publishing software. Teaches document layout and design, fonts, type styles, style sheets, and graphics. Lecture 3-4 hours per week.

**AST 265 LEGAL OFFICE PROCEDURES I (3 CR.)**

Introduces general office procedures used in law offices and courts. Lecture 3 hours per week.

**AST 266 LEGAL OFFICE PROCEDURES II (3 CR.)**

Prerequisite AST 265 or equivalent. Develops skills necessary to provide organizational and technical support in a legal setting. Emphasizes administrative and supervisory duties. Lecture 3 hours per week.

**AST 271 MEDICAL OFFICE PROCEDURES I (3 CR.)**

Covers medical office procedures, records management, preparation of medical reports, and other medical documents. Lecture 3 hours per week.

**AST 272 MEDICAL OFFICE PROCEDURES II (3 CR.)**

Prerequisite: AST 271 or equivalent. Develops skills in the performance of administrative and support services in a medical setting. Covers professional ethics, medical legal issues, and interaction with patients. Lecture 3 hours per week.

## **AIR CONDITIONING AND REFRIGERATION (AIR)**

**AIR 121 AIR CONDITIONING AND REFRIGERATION I (3 CR.)** Prerequisite: MTH 02 or equivalent. 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 150 INTRODUCTION TO SOLAR INDUSTRY (3 CR.)** Prerequisite: MTH 103 or equivalent. 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 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.

## **ART (ART)**

**ART 100 ART APPRECIATION (3 CR.)** Introduces art from prehistoric times to the present day. Describes architectural styles, sculpture, photography, print-making, and painting techniques.

**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 CR.) (3 CR.)** Explores the concepts of two- and three-dimensional design and color. May include field trips as required. Variable hours per week.

**ART 201-202 HISTORY OF ART I-II (3 CR.) (3 CR.)** Studies the historical conflict of art of the ancient, medieval, Renaissance and modern worlds. Lecture 3 hours per week.

**ART 211-212 HISTORY OF AMERICAN ART I-II (3 CR.) (3 CR.)** Surveys the history of American art from the 1600's to the present. Emphasizes architecture, sculpture, and painting. Includes crafts, decorative arts, and photography. Lecture 3 hours per week.

**ART 221-222 DRAWING III-IV (3 CR.) (3 CR.)**

Prerequisite: ART 121. 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 241-242 PAINTING I-II (3 CR.) (3 CR.)**

Prerequisite: ART 121 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 CR.) (3 CR.)**

Prerequisite: ART 121 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 CR.) (3 CR.)**

Prerequisites: ART 122 and ART 132. 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 281-282 GRAPHIC TECHNIQUES I-II (3 CR.) (3 CR.)**

Prerequisites: ART 122 and ART 132. Focuses on the use of drawing instruments and materials. Introduces printing processes and the mechanics of reproduction. Employs MacIntosh computer for graphic design. Lecture 2 hours. Studio instruction 3 hours. Total 5 hours per week.

**ART 286 COMMUNICATION ARTS WORKSHOP (3 CR.)**

Prerequisites: ART 251 and ART 281. 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.

**AVIATION (ARO)****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 20 INTRODUCTION TO HUMAN SYSTEMS (3 CR.)**

Presents basic principles of human anatomy and physiology. Discusses cells, tissues, and selected human systems. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**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. Integrates concepts of chemistry, physics and pathology. Lecture 3 hours per week. Recitation and laboratory 2 hours per week. Total 5 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 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 277 REGIONAL FLORA (2 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.

**BIO 285 BIOLOGICAL PROBLEMS IN CONTEMPORARY SOCIETY (3 CR.)**

Discusses major biological problems facing society which may include environmental and health concerns such as pollution, bioengineering, drug abuse, conservation, famine and others. Lecture 3 hours per week.

**BROADCASTING (BCS)****BCS 110 FUNDAMENTALS OF VIDEO PRODUCTION (4 CR.)**

Studies the use of video equipment and the application of production techniques and aesthetics in electronic media, and develops fundamental production skills through hands-on experience with cameras, video tape recorders, video switcher, graphics computers and lighting instruments. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**BCS 115 AUDIO PRODUCTION FOR ELECTRONIC MEDIA (4 CR.)** Studies the use of audio equipment and the application of production techniques and aesthetics in electronic media, and develops production skills through hands-on experience with mixing boards, tape recorders, compact disc players, cart machines and microphones. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**BCS 116 ELECTRONIC MEDIA WRITING (3 CR.)** Corequisite: ENG 111. Studies and provides practical training in the basics of electronic media writing, including advertising, promotional and informational script writing. Teaches writing theories, techniques, formats, audience analysis, appeals and production considerations. Lecture 3 hours per week.

**BCS 117 ELECTRONIC JOURNALISM (3 CR.)** Prerequisite: ENG 111. Teaches and provides practical training in electronic news reporting, writing, editing and stacking (organization). Studies electronic news ethics and responsible news gathering and reporting in a free society. Lecture 3 hours per week.

**BCS 125 PRODUCTION DESIGN FOR VIDEO (3 CR.)** Prerequisite: BCS 110. Studies the techniques and aesthetics of graphic design, lighting and staging for video productions. Includes hands-on experience in applying production design techniques in each of the four stages of video production: creative preproduction, setup and rehearsal, production and post production. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**BCS 130 MEDIA PERFORMANCE (3 CR.)** Prerequisite: BCS 115. Studies electronic media announcing techniques, including phonetics, pronunciation, enunciation and modes of articulatory expression. Provides practical experience through performance exercises. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**BCS 140 INTRODUCTION TO MASS MEDIA (3 CR.)** Studies the development of mass media communication, including the history and technological evolution of print and electronic media. Emphasizing mass communication in the United States. Lecture 3 hours per week.

**BCS 228 ELECTRONIC FIELD REPORTING AND PRODUCTION (4 CR.)** Prerequisites: BCS 110 and BCS 117. Studies electronic news gathering techniques and aesthetics and develops skills through hands-on experience with portable equipment in recording, editing and interpreting news events. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week.

**BCS 230 ADVANCED VIDEO PRODUCTION (4 CR.)** Prerequisites: BCS 110, BCS 116 and BCS 125. Studies advanced video production techniques and aesthetics in electronic media, production planning, and producer/director responsibilities; develops advanced production skills through hands-on experience with video equipment and directing skills through student directed video productions. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week.

**BCS 235 ELECTRONIC MEDIA MANAGEMENT (3 CR.)** Prerequisites: BCS 110 and BCS 140. Studies the functions, roles and skills of media managers in broadcast, cable and corporate facilities with emphasis on financial management, personnel management, programming, physical systems and regulations. Includes an overview of management theory. Lecture 3 hours per week.

**BCS 247 ELECTRONIC MEDIA ADVERTISING (3 CR.)** Prerequisites: BCS 110 and BCS 116. Studies advertising and sales functions in electronic media organizations, emphasizing the sales process, rating systems and rate cards. Studies advertising agencies, media buyers and research organizations and their relationship to electronic media organizations. Provides practical experience in copywriting and campaign planning. Lecture 3 hours per week.

### **BUILDING (BLD)**

**BLD 20 INTRODUCTION TO PLUMBING (2 CR.)** Presents an introduction to the principles and practices and interpreting various kinds of blueprints and working drawings with reference to local, state, and national building codes. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

**BLD 25 ANALYSIS AND TROUBLESHOOTING IN PLUMBING (3 CR.)** Emphasizes improving student's ability to determine the cost of materials and labor on jobs performed by plumbers. Introduces techniques and practices that aid the plumber in preparing simplified drawings of the job. Stresses techniques and practices of troubleshooting in plumbing. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**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 136 BUILDING CONSTRUCTION MATHEMATICS (2 CR.)** Applies mathematics to the building construction trades. Emphasizes basic arithmetic, accurate measurement, computation of building material, measurement of complex areas and volumes, and everyday problems in the building trades. Lecture 2 hours per week.

**BLD 195 VIRGINIA CONTRACTOR LICENSING REVIEW (2 CR.)** This course will review material covered in the Virginia Class A and Class B Contractor Licensure Examinations. Areas covered include: regulation of contractors; contract, project and financial management; safety, personnel and payroll; insurance, bonding and liens. Lecture 2 hours per week.

**BLD 295 MECHANICAL CODE (3 CR.)** Teaches purpose and interpretation of the Mechanical Code as well as familiarizations with various charts, code rulings, and installation methods. Lecture 3 hours per week.

**BLD 299 PLUMBING CODE (3 CR.)** Teaches purchase and interpretation of the Mechanical Code as well as familiarizations with various charts, code rulings, and installation methods. Lecture 3 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, production, human resource management, marketing, finance, and risk management. Develops business vocabulary. Lecture 3 hours per week.

**BUS 111 PRINCIPLES OF SUPERVISION I (3-4 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 3-4 hours per week.

**BUS 112 PRINCIPLES OF SUPERVISION II (3-4 CR.)** Prerequisite: BUS 111. Develops skills in carrying out the responsibilities of a supervisor including interviewing, evaluating and disciplining, and problem-solving techniques. Lecture 3-4 hours per week.

**BUS 125 APPLIED BUSINESS MATHEMATICS (3 CR.)** Applies mathematical operations to business process and problems such as wages and payroll, sales and property taxes, checkbook records and bank reconciliation, depreciation, overhead, distribution of profits and loss in partnerships, distribution of corporate dividends, commercial discounts, markup, markdown, simple interest, present values, bank discount notes, multiple payment plans, compound interest, annuities, sinking funds, and amortization. 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 100, BUS 111 or BUS 150. Focuses on management practices and issues in marketing and finance. May use case studies and/or management decision models to analyze and develop solutions to management problems. 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, employee evaluation systems, compensation and labor relations. Includes procedures for management of human resources and uses case studies and problems to demonstrate implementation of these techniques. Lecture 3 hours per week.

**BUS 221 BUSINESS STATISTICS I (3 CR.)** Prerequisite: MTH 163 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 division 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 240 INTRODUCTION TO BUSINESS LAW (3 CR.)** Presents an introduction to the American legal system, including an overview of the courts, civil and criminal law. Develops an in-depth understanding of contracts, agency law, and business organizations. Also, includes an overview of property, UCC Sales, and Commercial Paper. 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 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 chemistry. Emphasizes applications to the health sciences. Can be used as a preparatory course for CHM 111-112. Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 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. 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 or CHM 05 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 245-246 Organic Chemistry Laboratory I-II (2 CR.) (2 CR.)** Is taken concurrently with CHM 241 and CHM 242. Includes qualitative organic analysis. Laboratory 3 hours. Lecture 1 hour. Total 4 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 state law. Lecture 2 hours per week.

**CIV 171 SURVEYING I (3 CR.)** Prerequisite: MTH 103, MTH 07 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 (2 CR.)** Prerequisite: CIV 171 and DRF 201. Presents the preparation of preliminary plans, subdivision computations and preparation of record plats for residential areas. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week.

**CIV 210 DESIGN OF STRUCTURAL SYSTEMS (4 CR.)** Prerequisite: MEC 132. Introduces the application of principles of mechanics and strength of materials to the analysis and design of civil engineering structures, specifically in the areas of building and highway construction. Lecture 4 hours per week.

**CIV 224 AIR AND WATER RESOURCES (2 CR.)** Prerequisite: MTH 103 or equivalent. Covers concepts and technologies involved in air pollution measurement and control; water supply and wastewater treatment. Lecture 2 hours per week.

**CIV 230 CIVIL CONSTRUCTION MATERIALS (3 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 2 hours. Laboratory 2 hours. Total 4 hours per week.

**COMPUTER SCIENCE (CSC)**

**CSC 110 INTRODUCTION TO COMPUTING (3 CR.)** Introduces problem solving through computer applications and 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 175 or MTH 271 or high school calculus 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. 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.

**DECORATING**

**DEC 100 INTRODUCTION TO INTERIOR DECORATING (3 CR.)** Presents the elements and principles of residential design with emphasis on space planning, color, lighting, materials, furnishings and costing. 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 (2 CR.)** Studies the various medical emergencies and techniques for managing emergencies in the dental setting. Additional practical applications and simulations of emergencies may be conducted to enhance basic knowledge from the one hour lecture component. Lecture 2 hours per week.

**DNH 130 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 client 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 client education techniques and methods. Provides supervised clinical practice in the dental hygiene clinic with emphasis on developing client treatment and instrument skills. Lecture 1 hour. Clinic 12 hours. Total 13 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 190 DENTAL HYGIENE COORDINATED PRACTICE (3 CR.)** Prerequisite: DNH 142. Continues supervised clinical practice in the dental hygiene clinic with emphasis on coordinating didactic

and clinical skills, and refining client treatment skills. Introduces special needs clients and treatment modifications. Lecture 2 hours. Clinic 3 hours. Total 5 hours per week.

**DNH 214 PRACTICAL MATERIALS FOR DENTAL HYGIENE (2 CR.)** Studies the current technologic advances, expanded functions, and clinical/laboratory materials used in dental hygiene practice. Provides laboratory experience for developing skills in the utilization and applications of these technologies and functions. Lecture 1 hour. Laboratory 2 hours. Total 3 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 226 PUBLIC HEALTH DENTAL HYGIENE I (2 CR.)** Studies and compares concepts of delivery of health care, applying the public health delivery model. Epidemiologic methods, research and biostatistics are applied to oral health program planning, implementation, and evaluation. Incorporates and applies current health issues and trends. Lecture 2 hours per week.

**DNH 227 PUBLIC HEALTH DENTAL HYGIENE II (1 CR.)** Prerequisite DNH 226. Applies concepts of public health program planning through student directed community projects with an emphasis on preventive oral health education. Includes development of table clinics, bulletin boards, and volunteer service in the community. Laboratory 3 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 190. 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 clients 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. 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 clients 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 127 GEOMETRIC TOLERANCING (1 CR.)** Teaches use of a positional tolerance system, its relationship to coordinated tolerance systems, and other aspects of U.S. standard drafting practices. Lecture 1 hour 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 118 METHODS AND MATERIALS IN THE LANGUAGE ARTS FOR CHILDREN (3 CR.)** Presents techniques and methods for encouraging the development of language and perceptual skills in young children. Stresses improvement of vocabulary, speech and methods to stimulate discussion. Survey's children's literature, examines elements of quality story telling and story reading, and stresses the use of audio-visual materials. Lecture 2 hours and Laboratory 2 hours per week.

**CHD 120 INTRODUCTION TO EARLY CHILDHOOD EDUCATION (3 CR.)** Introduces early childhood development through activities and experiences in nursery, pre-kindergarten and primary programs. Investigates classroom organization and procedures, and the 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 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 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 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 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 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 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 201 PRINCIPLES OF ECONOMICS I - MACROECONOMICS (3 CR.)** Introduces macroeconomics including the study of Keynesian, classical, monetarist principles and theories, the study of national economic growth, inflation, recession, unemployment, financial markets, money and banking, the role of government spending and taxation, along with international trade and investments. Lecture 3 hours per week.

**ECO 202 PRINCIPLES OF ECONOMICS II - MICROECONOMICS (3 CR.)** Introduces the basic concepts of microeconomics. Explores the free market concepts with coverage of economic models and graphs, scarcity and choices, supply and demand, elasticities, marginal benefits and costs, profits, and production and distribution. 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.

### **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.)** 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.)** Corequisite: ETR 113 or ETR 131 or consent of the instructor. 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 133-134 PRACTICAL ELECTRICITY I-II (3 CR.) (3 CR.)** Prerequisite: general math proficiency. Teaches the fundamentals of electricity, terminology, symbols, and diagrams. Includes principles essential to understanding 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 147 ELECTRICAL POWER AND CONTROL SYSTEMS (3 CR.)** Prerequisite: ELE 134 or equivalent. Reviews basic DC and AC circuits. Covers single-phase and three-phase AC power distribution systems, and protection devices, including types of AC motors. Presents analyzing and troubleshooting electrical control systems and motor protection devices. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**ELE 150 A.C. AND D.C. CIRCUIT FUNDAMENTALS (3 CR.)** Corequisite: MTH 113. 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 (4 CR.)** Prerequisite: ETR 132, MTH 114. Studies the construction, theory of operations and applications of DC and AC machines. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**ELE 239 PROGRAMMABLE CONTROLLERS (2 CR.)** Prerequisite: ETR 280 and ELE 211 or consent of the instructor. Deals with installation, programming, interfacing, and concepts of troubleshooting programmable controllers. Lecture 1 hour per week. Laboratory 2 hours per week. Total 3 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 (4 CR.)**

(4 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 3 hours. Laboratory 3 hours. Total 6 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 195 ELECTRONIC COMMUNICATIONS & DATA SYSTEMS (4 CR.)**

Covers principles of electronic communications applied to practical systems. Topics include modulation techniques, RF and data transmission, networks, and receiver systems. Laboratory activities will emphasize standard testing and evaluation methods. Lecture 3 hours. Laboratory 3 hours. Total 6 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 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 systems, 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 (4 CR.) (4 CR.)**

Prerequisite: MTH 114, ETR 132. Studies the theory and operational characteristics of solid-state electronic devices including diodes, transistors, thyristors and operational amplifiers. Device models for discrete and integrated circuits are developed for the analysis and design of electronic systems including amplifiers, power supplies, and signal generators. Theory and application of feedback is discussed. Troubleshooting methods and schematic interpretation are emphasized. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**ETR 260 ELECTRONIC CIRCUITS AND INSTRUMENTATION (4 CR.)**

(For non-electrical/electronic majors) Covers electronic circuits, devices and instrumentation. A.C. and D.C. circuit theory, electronic circuits involving amplifiers, oscillators and their applications. Includes troubleshooting practices. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

**ETR 265 ADVANCED MICROPROCESSORS**

(4 CR.) Prerequisite: ETR 280. Provides an in-depth treatment of microprocessors including machine level programming, memory structure, and serial and parallel I/O devices. 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, their internal operation and control language. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**ETR 281 DIGITAL SYSTEMS I (3 CR.)**

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.

**ETR 295 ELECTRONIC PROCESSING & CONTROL SYSTEMS (5 CR.)**

Covers functional analyzing to isolate defects in electronic systems such as amplifiers, receivers, and video display systems. Topics also include a survey of industrial controls, circuits and devices. Lecture 3 hours. Laboratory 6 hours. Total 9 hours per week.

**EMERGENCY MEDICAL TECHNOLOGY (EMT)**

**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, cardiopulmonary 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 111. 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 calculators and computer applications. Laboratory 2 hours. Total 2 hours per week.

**EGR 115 ENGINEERING GRAPHICS (2 CR.)** Corequisite: MTH 166 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 175 and MTH 177 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 175 and MTH 177 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 127 INTRODUCTION TO COMPUTER PROGRAMMING (2 CR.)** Corequisite: MTH 103 or equivalent. Focuses on the roles and responsibilities of the engineering team, introduces programming in a

higher level language on the microcomputer (BASIC). Uses the operating system, packaged software and peripheral devices. Emphasizes engineering technology program problem solving using calculators and computers. Lecture 1 hour. Laboratory 2 hours. Total 3 hours per week.

**EGR 140 ENGINEERING MECHANICS - STATICS (3 CR.)** Prerequisite: MTH 175 and MTH 177 or equivalent. 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 206 ENGINEERING ECONOMY (3 CR.)** Prerequisite: MTH 271 or equivalent. Presents economic analysis of engineering alternatives. Studies economic and cost concepts, calculation of economic equivalence, comparison of alternatives, replacement economy, economic optimization in design and operation, depreciation, and after tax analysis. Lecture 3 hours per week.

**EGR 216 COMPUTER METHODS IN ENGINEERING AND TECHNOLOGY (3 CR.)** Prerequisite: MTH 114 and either EGR 100, 125, 126, 127 or equivalent. Provides advanced level experience in using a computer as a tool for solving technical problems and performing office functions. Includes computer hardware and operating system usage, structured programming in a selected high level language, use of word processing software, computer graphics and spreadsheets. Assignments to focus on the analysis and solution of problems in engineering and technology. Lecture 2 hours. Laboratory 2 hours. Total 4 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.

**EGR 247 MECHANICS OF MATERIALS LABORATORY (1 CR.)** Examines mechanical behavior of bars, rods, shafts, tubes and beams subjected to various types of loading. Introduces experimental stress analysis techniques, such as the use of strain gages and data reduction. Laboratory 2 hours per week.

**EGR 251-252 BASIC ELECTRIC CIRCUITS I-II (3 CR.)** Teaches fundamentals of electric circuits. Includes circuit quantities of charge, current, potential, power and energy. Teaches resistive circuit analysis; Ohm's and Kirchoff's laws; nodal and mesh analysis; network theorems; RC, RL and RLC circuit transient response with constant forcing functions. Teaches AC steady-state analysis, power, three-phase circuits. Presents frequency domain analysis, resonance, Fourier series, inductively coupled circuits, Laplace transform applications, and circuit transfer functions. Introduces problem solving using computers. 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 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 107 CRITICAL READING (3 CR.)** Helps students refine their reading processes. Emphasizes applying and synthesizing ideas. Includes ways to detect organization, make inferences, draw conclusions, evaluate generalizations, recognize differences between facts and opinions, and other advanced comprehension strategies. May include comprehensive library skills. 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 115 TECHNICAL WRITING (3 CR.)** Develops ability in technical writing through extensive practice in composing technical reports and other documents. Guides students in achieving voice, tone, style, and content in formatting, editing, and graphics. Introduces students to technical discourse through selected reading. Lecture 3 hours per week.

**ENG 215-216 CREATIVE WRITING - FICTION I-II (3 CR.) (3 CR.)** Introduces the fundamentals and techniques of writing short and long fiction. Lecture 3 hours per week.

**ENG 217-218 CREATIVE WRITING - POETRY I-II (3 CR.) (3 CR.)** Introduces the fundamentals and techniques of writing poetry. 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.

### **ENVIRONMENTAL SCIENCE AND TECHNOLOGY (ENV)**

**ENV 110 INTRODUCTION TO WATER AND WASTE WATER TREATMENT TECHNOLOGY (3 CR.)** Provides entry-level students with a general overview of the entire water supply, treatment, and disposal system. Traces water supply from raw state through treatment, storage, distribution, use, waste collection, and discharge back to the environment. Covers aspects of water supply and waste water treatment. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**ENV 120 INTRODUCTION TO AIR POLLUTION (3 CR.)** Studies air pollution in relation to public health. Studies scientific, engineering, and legal aspects of pollution; sources and classification of pollutants, pollution metrology; sampling and measuring techniques; remedies and controls currently available. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**ENV 160 INTRODUCTION TO SOLID WASTE MANAGEMENT (3 CR.)** Explores basic principles, including solid waste planning factors, disposal alternatives for special and hazardous wastes, disposal method selection, disposal site selection, hydro-geologic studies, site preparation plan, operations plan, leachate and methane collection plans, erosion and sediment control plan and final closure and stabilization plans. Lecture 3 hours per week.

**ENV 180 INTRODUCTION TO HAZARDOUS WASTE (2 CR.)** Presents an overview of the hazardous material problems and explains employee responsibilities in the workplace. Emphasizes "Train the Trainer" so that the students will return to the workplace and instruct others. Lecture 2 hours per week.

**ENV 220 ENVIRONMENTAL PROBLEMS (3 CR.)** Studies the relationship of man to his environment; ecological principles, population dynamics, topics of current importance including air, water, and noise pollution; poisoning and toxicity, radiation, conservation and management of natural resources. Lecture 3 hours per week.

**ENV 227 ENVIRONMENTAL LAW (2 CR.)** Introduces environmental law including the history of environmental laws, the National Environment Policy Act, state environmental acts, hazardous wastes, endangered species, pollution, and surface mine reclamation. Lecture 2 hours per week.

## **FINANCIAL SERVICES (FIN)**

**FIN 108 PRINCIPLES OF SECURITIES INVESTMENT (3 CR.)** Provides an introduction to the fundamentals of the security investment process. Reviews the investment strategy associated with various types of stock orders, discusses the fundamental and technical approaches to common stock analysis, and examines bond and preferred stock pricing mechanisms. Also reviews the unique aspects of derivative security, mutual fund, real estate and limited partnership investments. Lecture 3 hours per week.

**FIN 110 PRINCIPLES OF BANKING (3 CR.)** This course provides 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 215 FINANCIAL MANAGEMENT (3 CR.)** Prerequisites: ACC 212, ACC 214 and BUS 125. Introduces basic financial management topics including statement analysis, working capital, capital budgeting,

and long-term financing. Focuses on Net Present Value and Internal Rate of Return techniques, lease vs. buy analysis, and Cost of Capital computations. 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 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 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, educational 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 135 METHODS OF INSTRUCTION (3 CR.)** Emphasizes development of teaching methods and aids, including role-playing, small group discussion and development of individual learning methods and materials. Requires students to develop lesson plans and make presentations on appropriate topics. Lecture 3 hours per week.

**FIR 140 FIRE OFFICER I CERTIFICATION (4 CR.)** Presents a basic course to help individuals develop the skills needed to supervise and direct personnel, and manage resources at the company level; and is based on the current requirements of the NFPA 1021, Standards for Fire Officer Professional Qualifications. Prepares student for certification as Fire Officer I. Lecture 4 hours per week.

**FIR 205 FIRE HYDRAULICS AND DISTRIBUTION SYSTEMS (5 CR.)** Prerequisite: MTH 121 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 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.

### **FOOD SERVICE MANAGEMENT**

**HRI 120 PRINCIPLES OF FOOD PREPARATION (4 CR.)** Applies scientific principles and techniques to the preparation of food, including carbohydrates, fats, and proteins. Includes preparation of fruits and vegetables, sugars and starches, meats, fish, and vegetables. Lecture 3 hours. Laboratory 3 hours. Total 6 hours.

**HRI 158 SANITATION AND SAFETY (3 CR.)** Covers the moral and legal responsibilities of management to insure a sanitary and safe environment in a food service operation. Emphasizes the causes and prevention of foodborne illnesses in conformity with federal, state and local guidelines. Focuses on OSHA standards in assuring safe working conditions. Lecture 3 hour per week.

**HRI 221-222 QUANTITY FOOD PREPARATION I-II (4 CR.) (4 CR.)** Applies principles, standards, and practices of cooking and baking in large quantity food production. Prerequisites HRI 120. Lecture 3 hours. Laboratory 3 hours. Total 6 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 (3 CR.) (3 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 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.)** Prerequisite: GOL 105 recommended but not required. 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.

**GOL 225 ENVIRONMENTAL GEOLOGY (4 CR.)** Explores the interaction between man and his physical environment. Stresses geological hazards and environmental pollution utilizing case histories. Prerequisite GOL 105. Lecture 3 hours per week. Laboratory 3 hours per week. 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 structure. Lecture 4 hours per week.

**GER 201-202 INTERMEDIATE GERMAN I-II (3 CR.) (3 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 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 116 PERSONAL WELLNESS (3 CR.)** Explores the relationship between personal health and physical fitness as they apply to individuals in today's society. Includes nutrition, weight control, stress, conditioning, and drugs. Lecture 3 hours per week.

**HLT 121 INTRODUCTION TO DRUG USE AND ABUSE (3 CR.)** Explores the use and abuse of drugs in contemporary society with emphasis upon sociological, physiological, and psychological effects of drugs. Lecture 3 hours per week.

**HLT 135 CHILD HEALTH AND NUTRITION (3 CR.)** Focuses on the physical needs of preschool children and methods to meet these needs. Emphasizes health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety related to health, growth, and development. Lecture 3 hours per week.

**HLT 143-144 MEDICAL TERMINOLOGY I-II (3 CR.) (3 CR.)** Provides an understanding of medical abbreviations and terms. Includes 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 155 CURRENT ISSUES AND HEALTH CARE (2 CR.)** Focuses on current issues in the health care industry. Lecture 2 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 295 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.

**HEALTH INFORMATION TECHNOLOGY (HIT)**

**HIT 121 MEDICAL TRANSCRIPTION I (4 CR.)** Develops skills in the transcription of various medical record reports, use of transcription references and proof

reading reports. Includes analysis of transcription department services and the quality of transcribed reports and equipment. Clinical 12 hours per week.

**HIT 125 MEDICAL REPORT TRANSCRIPTION (3 CR.)** Prerequisite: AST 102 or department approval. Develops skill in the transcription and preparation of reports for the medical record and in the operation and care of dictating and transcribing equipment. Laboratory 12 hours per week.

**HIT 196 ON-SITE TRAINING IN MEDICAL TRANSCRIPTION (3 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.

**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. HIS 121 covers America from the 1500s to 1865 and HIS 122 continues the course to the 1990s. 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 141-142 AFRO-AMERICAN HISTORY I-II (3 CR.) (3 CR.)** Surveys the history of black Americans from their African origins 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 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 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 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 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 231 PLANTING DESIGN I (3 CR.)**  
Prerequisite: HRT 201. Applies landscape theory and principles of drawing to the planning of landscape designs for residential and small scale commercial projects. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**HRT 232 PLANTING DESIGN II (3 CR.)**  
Prerequisite: HRT 231. Applies landscape theory and principles of drawing to the planning of landscape designs for large-scale projects. Lecture 2 hours. Laboratory 2 hours. Total 4 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 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 turfgrass identification, selection, culture, propagation, and pest control from a commercial standpoint. Surveys turf care operations and use of common equipment. Lecture 2 hours. Laboratory 2 hours. Total 4 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.

**HRT 285 MANAGEMENT OF A HORTICULTURE BUSINESS (3 CR.)** Studies the business and selling practices which relate to wholesale and retail horticulture businesses including garden centers, greenhouses, nurseries, and flower shops. Examines planning and layout, suppliers, merchandising, maintenance, and display of horticultural items. Lecture 2 hours. Laboratory 2 hours. Total 4 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.

**INDUSTRIAL TECHNOLOGY PROGRAM (IND)**

**IND 113 MATERIALS AND PROCESSES IN MANUFACTURING I (2 CR.)** Studies materials and processes for the manufacturing of products. Investigates the nature of various materials. Examines the manufacturing processes of industry and their effects on materials. Lecture 2 hours per week.

**IND 140 QUALITY CONTROL (2 CR.)** Studies history, structure, and organization of the quality control unit. May include incoming material control, project and process control, and cost control. Lecture 2 hours per week.

**IND 230 APPLIED QUALITY CONTROL (3 CR.)** Studies principles of inspection and quality assurance with emphasis on statistical process control. May include the setting up, maintaining, and interpreting of control charts, and review of basic metrology. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**INFORMATION SYSTEMS TECHNOLOGY (IST)**

**IST 113 COMPUTERS AND INFORMATION SYSTEMS (1-2 CR.)** Introduces terminology, concepts and methods of using computers in information systems. Teaches computer literacy course, not intended for Computer Information Systems majors. Lecture 1-2 hour per week.

**IST 117 INTRODUCTION TO MICROCOMPUTER SOFTWARE (3-4 CR.)** Provides a hands-on working introduction to microcomputer software, fundamentals, and applications. Includes operating systems, word processing, spreadsheet, and database software. Proficiency in keyboarding (25 wpm). Lecture 3-4 hours per week.

**IST 123 SPREADSHEET SOFTWARE I (3-4 CR.)** Provides a working knowledge of a commercial spreadsheet package to include designing a variety of worksheets, preparing graphs, working with database query, macro writing, and menu techniques. Lecture 3-4 hours per week.

**IST 133 DATABASE MANAGEMENT SOFTWARE (3-4 CR.)** Provides a working introduction to software for database management. Teaches planning, defining, and using a database; performing queries; producing reports; working with multiple files; and concepts of database programming. Offers a working knowledge of a commercial database package. Lecture 3-4 hours per week.

**IST 139 MICROCOMPUTER INTEGRATED SOFTWARE (3-4 CR.)** Provides a working introduction to integrated software for microcomputers. Teaches integration of spreadsheet, database management, word processing and telecommunication software. Lecture 3-4 hours per week.

**IST 160 COMPUTER PROGRAMMING: BASIC I (4 CR.)** A laboratory co-requisite (IST 161) may be required. Teaches writing BASIC programs from stated problems or specifications, applying structured programming methods to develop working software that meet specifications. Provides specific skills for modifying existing programs.

**IST 162 COMPUTER PROGRAMMING: COBOL I (3-4 CR.)** Teaches writing COBOL programs from stated problems or specifications, applying structured programming methods to develop working software that meets specifications. Provides specific skills for modifying existing programs. Lecture 3-4 hours per week.

**IST 172 COMPUTER PROGRAMMING: C I (3-4 CR.)** Teaches writing "C" programs from stated problem or specifications and applying structured programming methods to develop working software that meets specifications. Provides specific skills for modifying existing programs. Lecture 3-4 hours per week.

**IST 176 EVENT-DRIVEN BASIC I (VISUAL BASIC) (3-4 CR.)** Teaches writing BASIC programs in an event-driven environment from stated problems or specifications applying graphical user interface techniques to develop working software that meets specifications. Provides specific skills to create, modify, and debug applications. Lecture 3-4 hours per week.

**IST 200 LOCAL AREA NETWORKS (3-4 CR.)** Teaches network topologies, protocols, network components, cabling, network operating systems, directories, security, printing, data backup, installation of file servers, workstations and applications. Lecture 3-4 hours per week.

**IST 215 JOB CONTROL LANGUAGE (2-3 CR.)** 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. Lecture 2-3 hours per week.

**IST 229 INTERNET PROGRAMMING (4 CR.)**

Examines basic and advanced techniques for creating homepages using HTML, current Internet programming languages, and graphic techniques. Emphasis will be placed on using a variety of tools to build functional and interesting web pages. Website management will be introduced as a way to manage the wide variety of problems encountered in building and maintaining a website. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

**IST 234 DATABASE MANAGEMENT AND FILE STRUCTURE (3-4 CR.)**

Introduces the theory and use of database management systems in business. Teaches how to access a database using a query language, how to design and create a database using the college's database management system, and how to write a program in a high-level language that accesses a database. Presents a study of sequential, relative, and indexed files and the use of pointers, linked lists, and inverted files. Lecture 3-4 hours per week.

**IST 251 COMPUTER INFORMATION SYSTEM DEVELOPMENT (3-4 CR.)**

Presents a structured approach to defining needs, creating specifications, and implementing new information systems. Teaches business-oriented, computer-based systems. Defines common processes and procedures. Includes data modeling, report generation, life cycle methodology, and traditional and structured tools for development. Lecture 3-4 hours per week.

**IST 255 COMPUTER PROGRAMMING**

**APPLICATIONS (3-4 CR.)** 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 3-4 hours per week.

**IST 262 COMPUTER PROGRAMMING:**

**COBOL II (3-4 CR.)** Prerequisite IST 162 or division approval. Teaches advanced structured programming techniques and procedures for more complex problems. Lecture 3-4 hours per week.

**INTERIOR DESIGN (IDS)**

**IDS 235 ANTIQUES (3 CR.)** Involves the process of research, authentication, and determining provenance. Covers examples of furnishings, fixtures, textiles, glass, and ceramics. May provide field trips, lectures, examination, and discussion to assist in determining age, condition and other properties. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**JAPANESE (JPN)****JPN 101-102 BEGINNING JAPANESE I-II**

**(4-5 CR.) (4-5 CR.)** Develops the understanding, speaking, reading, and writing of Japanese, and emphasizes the structure of the language. Lecture 4-5 hours per week. May include one additional hour of oral practice per week.

**JPN 201-202 INTERMEDIATE JAPANESE I-II**

**(3-4 CR.) (3-4 CR.)** Prerequisite: JPN 102. Continues the development of the skills of understanding, speaking, reading, and writing of Japanese. Classes conducted in Japanese. Lecture 3-4 hours per week. May include one additional hour of oral practice per week.

**LEGAL ASSISTING (LGL)****LGL 110 INTRODUCTION TO LAW AND THE LEGAL ASSISTANT (3 CR.)**

Introduces various areas of law in which a legal assistant may be employed. Includes 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 FOR LEGAL**

**ASSISTANTS (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 these various instruments and studies the system of recording and search of public documents. Lecture 3 hours per week.

**LGL 117 FAMILY LAW (3 CR.)**

Studies elements of a valid marriage, grounds for divorce and annulment, separation, defenses, custody, support, adoptions, and applicable tax consequences. Includes property settlement, pre- and ante-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 the law library, and emphasizes research skills through the use of digests, encyclopedias, reporter systems, codes, Shepard's Citations, ALR, and other research tools. May include overview of computer applications and writing projects. Lecture 3 hours per week.

**LGL 126 LEGAL WRITING (3 CR.)**

Prerequisite: ENG 111 or permission of instructor. Studies proper preparation of various legal documents, including legal memoranda, letters, and pleadings. Involves practical applications. May include case and appellate briefs. Lecture 3 hours per week.

**LGL 199 COORDINATED INTERNSHIP IN**

**LEGAL ASSISTING (3 CR.)** Supervised on-the-job training in law-related fields approved by the College.

**LGL 200 ETHICS FOR THE LEGAL ASSISTANT**

**(1 CR.)** Examines general principles of ethical conduct applicable to legal assistants. Includes the application of rules of ethics to the practicing legal assistant. Lecture 1 hour per week.

**LGL 210 VIRGINIA AND FEDERAL**

**PROCEDURE (3 CR.)** Examines the rules of procedure in the Virginia and federal courts, including the Federal Rules of Civil Procedure and the Rules of Practice and Procedure in the District Courts, Circuit Courts, Virginia Court of Appeals, and the Supreme Court of Virginia. Lecture 3 hours per week.

**LGL 215 TORTS (3 CR.)** Studies fundamental principles of the law of torts. May include preparation and use of pleadings and other documents involved in the trial of a civil action. Emphasizes personal injury, products liability, and malpractice cases. Lecture 3 hours per week.

**LGL 216 TRIAL PREPARATION AND DISCOVERY PRACTICE (3 CR.)** Examines the trial process, including the preparation of a trial notebook, pretrial motions, and orders. May include the preparation 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 218 CRIMINAL LAW (3 CR.)** Focuses on major crimes, including their classification, elements of proof, intent, conspiracy, responsibility, parties, and defenses. Emphasizes Virginia Law. May include general principles of applicable constitutional law and criminal procedures. Lecture 3 hours per week.

**LGL 220 ADMINISTRATIVE PRACTICE AND PROCEDURE (3 CR.)** Surveys applicable administrative laws, including the Privacy Act, the Administrative Process Act, and the Freedom of Information Act. Studies practice and procedure involving the ABC Commission, State Corporation Commission, Division of Workers' Compensation, Social Security Administration, the Virginia Employment Commission, and other administrative agencies. Lecture 3 hours per week.

**LGL 225 ESTATE PLANNING AND PROBATE (3 CR.)** Introduces various devices used to plan an estate, including wills, trusts, 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.)** Prerequisite: LGL 115 or instructor's permission. Reviews aspects of abstracting title to real estate, recordation of land transactions, liens, grantor-grantee indices, warranties, covenants, restrictions, and easements. Lecture 3 hours per week.

**LGL 230 LEGAL TRANSACTIONS (3 CR.)** Presents an in-depth study of general contract law, including formation, breach, enforcement, and remedies. May include an overview of the Uniform Commercial Code sales, commercial paper, and collections. Lecture 3 hours per week.

**LGL 235 LEGAL ASPECTS OF BUSINESS ORGANIZATIONS (3 CR.)** Studies the fundamental principles of agency law and the formation of business organizations. Includes sole proprietorship, partnerships, corporations, limited liability companies, and other business entities. Reviews preparation of the documents necessary for the organization and operation of businesses. Lecture 3 hours per week.

**LGL 237 LAW OF INCOME TAXATION (3 CR.)** Studies the theory and practical application of the law of

income taxation, including preparation of income tax returns and related materials. Lecture 3 hours per week.

**LGL 238 BANKRUPTCY (3 CR.)** Provides a practical understanding of nonbankruptcy alternatives and the laws of bankruptcy including Chapters 7, 11, 12 and 13 of the Bankruptcy Code. Emphasis will be placed on preparing petitions, schedules, statements and other forms. Lecture 3 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.

**MAC 181 MACHINE BLUEPRINT READING I (3 CR.)** Introduces reading and interpreting blueprints and working drawings. Applies visualization of objects, sketching, and machine terminology. Lecture 3 hours per week.

**MAC 245 ADVANCED NUMERICAL CONTROL (2 CR.)** Prerequisite: MAC 181. Applies the computer numerical control to machine tools, program writing setup and operation of milling machine and lathe. Lecture 1 hr. Laboratory 3 hrs. Total 4 hrs. per week.

### MARKETING (MKT)

**MKT 100 PRINCIPLES OF MARKETING (3 CR.)** Presents principles, methods, and problems involved in the marketing of goods, services and ideas to consumers and organizational buyers. 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 ethical and international considerations in marketing. Lecture 3 hours per week.

**MKT 110 PRINCIPLES OF SELLING (3 CR.)** Presents fundamental aspects of personal selling, sales, and selling methods. Emphasizes professional sales techniques and ethics. 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 220 PRINCIPLES OF ADVERTISING (3 CR.)** Emphasizes the role of advertising in marketing goods, services and ideas. Discusses the different uses of advertising; types of media; how advertising is created; agency functions; and legal, social, and economic aspects of the industry. 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 and domestic marketing strategies. Lecture 3 hours per week.

**MATHEMATICS (MTH)**

**MTH 02 ARITHMETIC (3 CR.)** Covers arithmetic principles and computations including whole numbers, fractions, decimals, percents, measurement, graph interpretation, geometric forms, and applications.

Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable towards graduation. Lecture 3 hours per week.

**MTH 03 ALGEBRA I (4 CR.)** Covers the topics of Algebra I including, real numbers, equations and equalities, exponents, polynomials, Cartesian coordinate system, rational expressions, and applications.

Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable toward graduation. Prerequisites: Arithmetic or equivalent and a placement recommendation for MTH 03. Lecture 4 hours per week.

**MTH 04 ALGEBRA II (4 CR.)** Expands upon the topics of Algebra I including rational expressions, radicals and exponents, quadratic equations, systems of equations, and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable toward graduation. Prerequisites: Algebra I or equivalent and a placement recommendation for MTH 04. Lecture 4 hours per week.

**MTH 06 DEVELOPMENTAL GEOMETRY (3 CR.)** Covers topics in Euclidean geometry including similarity and congruency, plane and solid figures, right triangles, parallel and perpendicular lines, constructions proofs, and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable toward graduation. Prerequisites: Algebra I or equivalent and placement recommendation for MTH 06. Lecture 3 hours per week.

**MTH 103 APPLIED TECHNICAL MATHEMATICS I (3 CR.)** Presents a review of arithmetic, elements of algebra, geometry, and trigonometry. This portion of the sequence deals with algebraic skills. Directs applications to specialty areas. Prerequisites: Algebra I or equivalent and a placement recommendation for MTH 103. Lecture 3 hours per week.

**MTH 105 SURVEY OF TECHNICAL MATHEMATICS I (2 CR.)** Reviews arithmetic and introduces measurement, basic algebra, plane and solid geometry and its application to triangles. Prerequisites: Algebra or equivalent and a placement recommendation for MTH 105. Lecture 2 hours per week.

**MTH 113-114 ENGINEERING TECHNICAL MATHEMATICS I-II (5 CR.) (4 CR.)** Presents algebra, geometry, trigonometry, and an introduction to calculus. Includes solutions of linear and quadratic equations, trigonometric curve sketching, logarithms, ratio, proportions, variation, vectors, and the binomial theorem. Prerequisites: Algebra I, Geometry, and Algebra II or equivalent. Lecture 5/4 hours per week.

**MTH 120 INTRODUCTION TO MATHEMATICS (3 CR.)** Introduces number systems, logic, basic

algebra, and descriptive statistics. Intended for occupational/technical programs. Prerequisites: Algebra I or equivalent and a placement recommendation for MTH 120. Lecture 3 hours per week.

**MTH 146 INTRODUCTION TO ELEMENTARY STATISTICS (3 CR.)** Introduces the methods of statistics including sampling from normally distributed populations, estimation, regression, testing of hypotheses, and point and interval estimation methods. Prerequisites: Algebra I or equivalent and a placement recommendation for MTH 146. Lecture 3 hours per week.

**MTH 151 MATHEMATICS FOR THE LIBERAL ARTS I (3 CR.)** Presents topics in sets, logic, numerations systems, geometric systems, and elementary computer concepts. Prerequisites: Algebra I, Algebra II and Geometry or equivalent and a placement recommendation for MTH 151. Lecture 3 hours per week.

**MTH 152 MATHEMATICS FOR THE LIBERAL ARTS II (3 CR.)** Presents topics in functions, combinatorics, probability, statistics and algebraic systems. Prerequisites: Algebra I, Algebra II and Geometry or equivalent and a placement recommendation for MTH 152. Lecture 3 hours per week.

**MTH 157 ELEMENTARY STATISTICS (3 CR.)** Presents elementary statistical methods and concepts including descriptive statistics, estimation, hypothesis testing, linear regression, and categorical data analysis. Credit will not be awarded for both MTH 157 and MTH 241. Prerequisites: Algebra I, Geometry, and Algebra II.

**MTH 163 PRE-CALCULUS I (3 CR.)** Presents college algebra, matrices, and algebraic, exponential, and logarithmic functions. Credit will not be awarded for both MTH 163 and MTH 166. Prerequisites: Algebra I, Algebra II, and Geometry or equivalent and a placement recommendation for MTH 163. Lecture 3 hours per week.

**MTH 166 PRE-CALCULUS WITH TRIGONOMETRY (5 CR.)** Presents college algebra, analytic geometry, trigonometry, and algebraic, exponential, and logarithmic functions. Credit will not be awarded for both MTH 163 and MTH 166. Prerequisites: Algebra I, Algebra II, and Geometry or equivalent and a placement recommendation for MTH 166. Lecture 5 hours per week.

**MTH 175 CALCULUS OF ONE VARIABLE I (3 CR.)** Presents differential calculus of one variable including the theory of limits, derivatives, differentials, antiderivatives and applications to algebraic and transcendental functions. Designed for mathematical, physical, and engineering science programs. Prerequisites: four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent and a placement recommendation for MTH 175. Lecture 3 hours per week.

**MTH 176 CALCULUS OF ONE VARIABLE II (3 CR.)** Continues the study of integral calculus of one variable including indefinite integral, definite integral and methods of integration with applications to algebraic and transcendental functions. Designed for mathematical, physical, and engineering science programs. Prerequisites: MTH 175 or equivalent. Lecture 3 hours per week.

**MTH 177 INTRODUCTORY LINEAR ALGEBRA (2 CR.)** Covers matrices, vector spaces, determinants, solutions of systems of linear equations, and eigenvalues. Designed for mathematical, physical, and engineering science programs. Corequisite: MTH 175 or equivalent. Lecture 2 hours per week.

**MTH 178 TOPICS IN ANALYTIC GEOMETRY (2 CR.)** Covers conic sections, polar and parametric graphing. Designed for mathematical, physical, and engineering science programs. Corequisite: MTH 176 or equivalent. Lecture 2 hours per week.

**MTH 213-214 ADVANCED ENGINEERING TECHNICAL MATHEMATICS I-II (3 CR.) (3 CR.)** Presents limits and differential and integral calculus with applications directed toward the appropriate technical field. Prerequisite: MTH 114 or equivalent. Lecture 3 hours per week.

**MTH 241 STATISTICS I (3 CR.)** Covers descriptive statistics, elementary probability, probability distributions, estimation, and hypothesis testing. Uses a computer package to solve case studies. Prerequisites: MTH 163 or MTH 166 or equivalent. Lecture 3 hours per week.

**MTH 242 STATISTICS (3 CR.)** Continues the study of estimation and hypothesis testing with emphasis on correlation and regression, analysis of variance, chi-square test, and non-parametric methods. Presents linear programming, network theory, project scheduling, and other quantitative applications. Uses a computer package to solve case studies. Prerequisites: MTH 241 or equivalent. Lecture 3 hours per week.

**MTH 271 APPLIED CALCULUS I (3 CR.)** Presents limits, continuity, differentiation of algebraic and transcendental functions with applications, and an introduction to integration. Prerequisite: MTH 163 or MTH 166 or equivalent. Lecture 3 hours per week.

**MTH 272 APPLIED CALCULUS II (3 CR.)** Covers techniques of integration, multivariable calculus, and an introduction to differential equations. Prerequisites: MTH 271 or equivalent. Lecture 3 hours per week.

**MTH 277 VECTOR CALCULUS (4 CR.)** Presents vector valued functions, partial derivatives, multiple integrals, infinite series, and topics from the calculus of vectors. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 176, MTH 177, MTH 178 or equivalent. Lecture 4 hours per week.

**MTH 291 DIFFERENTIAL EQUATIONS (3 CR.)** Introduces first order differential equations, linear

differential equations, numerical methods, and applications. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 277 or equivalent. Lecture 3 hour per week.

### **MECHANICAL ENGINEERING TECHNOLOGY (MEC)**

**MEC 113 MATERIALS AND PROCESSES OF INDUSTRY (4 CR.)** Studies engineering materials and accompanying industrial manufacturing processes. Investigates nature of materials structure and properties from a design standpoint. Analyzes the effects of the various processes on materials and the process themselves. Includes machining, casting, forming, molding, hot/cold working, chipless machining, and welding. Addresses quality assurance and inspection procedures. Lecture 4 hours per week.

**MEC 118 AUTOMATED MANUFACTURING TECHNOLOGY (2 CR.)** Prerequisite: MAC 131, MEC 120 or equivalent. Studies computer numerical control (CNC) systems and related software. Includes application of numerical control (NC) 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 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 135 MECHANICS LABORATORY (1 CR.)** Corequisite: MEC 132. Analyzes tension, compression, torsion, bending, fatigue, impact strength, and hardness of materials. Addresses static and dynamic stresses and strains. Provides for statistical evaluation of data. Includes experiments and/or demonstrations. Laboratory 2 hours per week.

**MEC 162 APPLIED FLUID MECHANICS--HYDRAULICS/PNEUMATICS (3 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 3 hours per week.

**MEC 211-212 MACHINE DESIGN I-II (4 CR.) (4 CR.)** Prerequisite: MTH 113. Corequisite: MEC 132. Introduces analytical design of bearings, clutches, coupling, brakes, springs, gearing systems, and power shafting. Emphasizes methods of construction, machine parts and specifications of materials, and manufacturing processes. Lecture 4 hours per week.

**MEC 255 THERMODYNAMICS (3 CR.)** Studies the basic principles of work, energy, and heat. Includes the first and second laws of thermodynamics, thermal processes and cycles, thermal reversibilities and irreversibilities, internal combustion engines, and gas turbines. 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.)** Departmental approval needed or student must be enrolled in Mental Health Program. 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 221-222 GROUP PROCESS I-II (3 CR.) (3 CR.)** Prerequisite: MEN 101-102. Departmental approval needed or student must be enrolled in Mental Health Program. 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 COUNSELING THERAPY (3 CR.)** Studies various models of counseling theories and appropriate application of counseling techniques in the helping profession. 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, involvement in music and related cultural activities. Acquaints 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 HUMAN ANATOMY AND PHYSIOLOGY I (4 CR.)** Presents the human organ systems and their functions as they relate to allied health science. Emphasizes systems of importance to Radiography. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week.

**NAS 185 MICROBIOLOGY (4 CR.)** Prerequisite: High school biology or BIO 101. Surveys microorganisms, presenting their characteristics and activities as related to health and disease. Lecture 3 hours per week. Recitation and 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 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 2 hours. Clinical 5 hours. Total 7 hours per week.

**NUR 70 RE-ENTRY 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. Clinical 9 hours. Total 12 hours per week.

**NUR 95 TOPICS IN NURSING (1 CR.)** Focuses on the nurse aide's responsibilities regarding professional ethics and relationships with patient, patient's family, supervisors, and peers in a health-care setting. Role play and written activities. Lecture 1 hour per week.

**NUR 100 - INTRODUCTION TO NURSING AND HEALTH (2 CR.)** Introduces concepts of nursing and health. Includes historical and cultural aspects, legal, and ethical responsibilities and an overview of health and the health care delivery system. Lecture 2 hours per week.

**NUR 110 INTRODUCTION TO NURSING & HEALTH (3 CR.)** Introduces concepts of Nursing and Health. Includes historical and cultural aspects, legal and ethical responsibilities and an overview of health and the health care delivery system. Lecture 1-3 hours per week.

**NUR 115 LPN TRANSITION (19 CR.)** Introduces the role of the registered nurse through concepts and skill development in the discipline of professional nursing. This course serves as a bridge course for licensed practical nurses and is based upon individualized articulation agreements, mobility exams, or other assessment criteria as they related to local programs and service areas. Includes math computational skills and basic computer instruction related to the delivery of nursing care. (THIS COURSE HAS BEEN APPROVED BY THE VICE CHANCELLOR AS AN EXCEPTION TO THE VARIABLE CREDIT POLICY.) Lecture 1-7 hours. Laboratory 0-18 hours. Total 2-19 hours per week.

**NUR 121 NURSING FUNDAMENTALS I (10 CR.)** Corequisite: BIO 141. Introduces the nursing process as a framework to meet the biopsychosocial needs of individuals/families throughout the lifespan. Focuses on development of basic nursing skills. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture 7 hours. Laboratory 9 hours. Total 16 hours per week.

**NUR 122 NURSING FUNDAMENTALS II (10 CR.)** Prerequisites: NUR 121. Corequisites: BIO 142, NAS 185. Utilizes the nursing process to meet the biopsychosocial needs of individuals/families experiencing prevalent variations in health. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture 6 hours. Laboratory 12 hours. 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 221-222 SECOND LEVEL NURSING PRINCIPLES AND CONCEPTS I, II (10 CR.) (10 CR.)** Prerequisites for NUR 221: NUR 122, NAS 185, BIO 141, BIO 142. Corequisite for NUR 221: PSY 201. Prerequisites for NUR 222: NUR 221 and PSY 201. Corequisite for NUR 222: PSY 215. Focuses on nursing care of individuals, families, and/or groups with multidimensional needs in

a variety of settings. Uses all components of the nursing process with increasing degrees of skill. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture 6 hours. Laboratory 12 hours. Total 18 hours per week.

**NUR 230 PHARMACOLOGY (3 CR.)** Teaches general principles of drug action, pharmacology of the major drug classes, and specific agents within each class. Includes math calculations necessary to adapt dosages to the multidimensional needs of individuals across the lifespan. Lecture 3 hours per week.

**NUR 290 - COORDINATED PRACTICE (1 CR.)** Provides clinical experience in acute care setting. Hospital experience. Clinical 2 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 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 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 ADVANCED PHOTOGRAPHY I (3 CR.)** Prerequisite: PHT 102 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 hrs. Laboratory 3 hrs. Total 5 hrs. per week.

### PHYSICAL EDUCATION AND RECREATION (PED)

**PED 103-104 AEROBIC FITNESS I-II (1-2 CR.) (1-2 CR.)** Develops cardiovascular fitness through 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 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 133-134 GOLF I-II(1-2 CR.)** Teaches basic skills of golf, rules, etiquette, scoring, terminology, equipment selection and use, and strategy. Lecture 1-2 hours. Laboratory 0-2 hours. Total 1-3 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 137-138 MARTIAL ARTS I-II (1-3 CR.)** Emphasizes forms, styles, and techniques of body control, physical and mental discipline, and physical fitness. Presents a brief history of development of martial arts theory and practice. Lecture 1-2 hours. Laboratory 0-2 hours. Total 1-3 hours per week.

**PED 140 WATER AEROBICS (1-2 CR.)** Focuses on cardiovascular endurance, muscular endurance, and flexibility using water resistance. Includes the principles and techniques of aerobic exercise. Variable hours per week.

**PED 141-142 SWIMMING I-II (1-2 CR.)** Introduces skills and methods of swimming strokes. Focuses on safety and physical conditioning. Variable hours per week.

**PED 144 SKIN AND SCUBA DIVING (1-2 CR.)** Prerequisite: Strong swimming skills: Emphasizes skills and methods of skin and scuba diving. Includes training with underwater breathing apparatus and focuses on safety procedures, selection and use of equipment. Lecture 1-2 hours. Laboratory 1-3 hours. Total 1-3 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 174 SHOOTING AND FIREARM SAFETY (1-3 CR.)** Teaches the basic techniques of shooting and firearm safety for both hunting and sport shooting. Emphasizes the selection and care of equipment, proper shooting forms, personal safety. Lecture 1-2 hours. Laboratory 0-2 hours. Total 1-3 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 201-202 GENERAL COLLEGE PHYSICS I-II (4 CR.) (4 CR.)** Prerequisites: MTH 113 or MTH 163 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 221-222 ENGINEERING PHYSICS I-II (3 CR.) (3 CR.)** Prerequisite: MTH 176 AND MTH 178 or one year of college calculus. 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 176 AND MTH 178 or one year of college calculus. 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, electricity, magnetism, and relativity. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

### **POLITICAL SCIENCE (PLS)**

**PLS 211-212 U.S. GOVERNMENT I-II (3 CR.) (3 CR.)** Teaches structure, operation, and electoral process of U.S. Government. Includes in-depth study of Presidency, Congress, Supreme Court, voting, elections, special interests and federal policy making. 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.

### **PRACTICAL NURSING (PNE)**

**PNE 135 MATERNAL AND CHILD HEALTH NURSING (5 CR.)** Examines pregnancy, childbirth, postpartum and newborn care from a family centered approach. Covers complications related to childbearing. Emphasizes growth and development and exploration of common childhood disorders at various ages. Lecture 4 hours. Laboratory 3 hours. Total 7 hours per week.

**PNE 141-142 NURSING SKILLS I-II (3 CR.)(3 CR.)** Studies principles and procedures essential to the basic nursing care of patients. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**PNE 145 TRENDS IN PRACTICAL NURSING (1 CR.)** Studies the role of the Licensed Practical Nurse. Covers legal aspects, organizations, and opportunities in practical nursing. Designed to assist the student in preparation for employment. Lecture 1 hour per week.

**PNE 151 MEDICAL-SURGICAL NURSING I (4 CR.)** Studies etiology, symptoms, prescribed treatment, and experiences in the nursing care of patients with selected disorders. Selects learning experiences to correlate related patient care with classroom instruction whenever possible. Provides observational experiences when available. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

**PNE 156 NURSING ACROSS THE LIFE SPAN (4 CR.)** Focuses on the principles of nursing relevant to assisting the individual during the growth and development process across the life span. Lecture 4 hours per week.

**PNE 158 MENTAL HEALTH AND PSYCHIATRIC NURSING (2 CR.)** Recognizes emotional needs of patients. Provides knowledge of the role that emotions play; Enables students to understand their own behavior as well as patient behavior. Lecture 2 hours per week.

**PNE 174 APPLIED PHARMACOLOGY FOR NURSES (1 CR.)** Applies problem solving skills in preparing and administering medications. Laboratory 3 hours.

**PNE 181-182 CLINICAL EXPERIENCE I-II (5 CR.)(6 CR.)** Provides guided nursing experiences in the hospital setting. Practices skills and applies principles of nursing in basic areas. Includes supervision in administration of medicines. Encourages students to develop basic skills in analyzing patient needs and making nursing decisions. Laboratory 15 hours for PNE 181 and 18 hours for PNE 182.

## **PSYCHOLOGY (PSY)**

**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 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 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 236 ADOLESCENT PSYCHOLOGY (3 CR.)** Studies development of the adolescent. Investigates physical, intellectual, social, and emotional factors of the individual from late childhood to early adulthood. 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.

## **RADIOGRAPHY (RAD)**

**RAD 106 INTRODUCTION TO RADIOLOGIC SCIENCE (2 CR.)** Presents an overview of radiographic imaging techniques, basic equipment, and elements of film processing. Basic technical factors of image production and radiographic quality are stressed. Lecture 2 hours per week.

**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 technical skills in fundamental radiographic procedures. Focuses on introduction to radiography, basic radiation safety, manipulation of equipment, patient care, osseous studies, and some contrast studies. Provides clinical experience in cooperating health agencies. Clinical 15 hours per week.

**RAD 190 COORDINATED PRACTICE (3 CR.)** Prerequisite: RAD 132. 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 16 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 PROCEDURES (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 hrs. 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 290 COORDINATED INTERNSHIP (4 CR.)** Prerequisite: RAD 232. Provides additional experience in radiographic procedures, demonstrating skills in technical proficiency, patient care procedures, radiation protection, and evaluation of experience in cooperating health agencies. Clinical 21 hours per week.

**RAD 295 TOPICS IN RADIOGRAPHY (1 CR.)** Seminar on advancements in radiographic imaging methods. New techniques and other topics of interest to the advanced student will be emphasized. Lecture 1 hour per week.

### **RAILROAD OPERATIONS (RRO)**

**RRO 105 RAILROAD TECHNICAL CAREERS (3 CR.)** Provides information about technical careers in railroading, enabling students to choose suitable career paths. Includes field trips which will demonstrate the relationships among technical work groups in day-to-day railroad operations. Describes basic technical job functions, requirements and characteristics. Lecture 3 hours per week.

**RRO 110 RAILROAD, SAFETY, QUALITY & ENVIRONMENT (3 CR.)** Prerequisite: RRO 105. Covers the importance of safety, quality, personal health, and environmental awareness to the railroad industry and emphasizes the basic tools and techniques for improving these conditions on the job. Lecture 3 hours per week.

**RRO 200 HISTORY OF RAILROADING (3 CR.)** Covers the history and traditions of railroading and the industry's role in North American economic development. Highlights and explains the significance of major events in North American railroading. Lecture 3 hours per week.

**RRO 210 RAILROAD OPERATIONS (3 CR.)** Prerequisite: RRO 105. Covers information about the railroad industry, its major assets, its structure, and typical operations. Defines the current North American railroading industry characteristics, basic operations components, and processes, and industry structure and administrative processes. Lecture 3 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 and concepts, real estate mathematics, financing, agency, appraisal, fair housing, and management of real estate. Lecture 4 hours per week.

**REA 215 REAL ESTATE BROKERAGE (3 CR.)**

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.)**

Explores fundamentals and applications of real estate valuation. Introduces Uniform Standards of Professional Appraisal Practice and the Uniform Residential Appraisal Report form. Lecture 3 hours per week.

**REA 217 REAL ESTATE FINANCE (3 CR.)**

Presents principles and practices of financing real estate. Analyzes various types of mortgage note contracts and mortgage and deed of trust instruments. Covers underwriting of conventional and government insured and guaranteed loans. Lecture 3 hours per week.

**REA 245 REAL ESTATE LAW (3 CR.)**

Focuses on real estate law, including rights pertaining to property ownership and management, agency contracts, transfers of real property ownership, fair housing, 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 real estate investments with emphasis on property selection and analysis, ownership interests, financing, and tax aspects. 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.

**RELIGION (REL)****REL 200 SURVEY OF THE OLD TESTAMENT (3 CR.)**

Surveys books of the Old Testament, with emphasis on prophetic historical books. Examines the historical and geographical setting and place of the Israelites in the ancient Middle East as background to the writings. Lecture 3 hours per week.

**REL 210 SURVEY OF THE NEW TESTAMENT (3 CR.)**

Surveys the New Testament, with special attention placing the writings within their historical and geographical setting. Lecture 3 hours per week.

**REL 230 RELIGIONS OF THE WORLD (3 CR.)**

Introduces the religions of the world with attention to origin, history, and doctrine. 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 on 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 environment 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 (3 CR.)**

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 105 ORIENTATION TO DEAFNESS (3 CR.)** Studies the ear mechanism, hearing losses, and causes of deafness. Provides an overview of the deaf community and hearing impaired consumers. Includes study of treatment and education of hearing impaired. Lecture 3 hour 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.

**SCM 115 EXPRESSIVE AND RECEPTIVE FINGERSPELLING (2 CR.)** Provides extensive practice of speed, accuracy, and clarity in sending and receiving fingerspelling. Focuses on increasing skills, including English vocabulary, spelling, and letter production. Lecture 2 hours per week.

**SCM 200 ADVANCED AMERICAN SIGN LANGUAGE (3 CR.)** Prerequisite: SCM 110 or consent of the instructor. Provides student with additional American Sign Language vocabulary. Emphasizes linguistic aspects of ASL, including classifiers, syntax, locatives, placement, and sentence types. Develops skill in expressive/receptive use of language. Lecture 3 hours per week.

**SCM 210 AMERICAN SIGN LANGUAGE FOR INTERPRETERS (3 CR.)** Prerequisite: SCM 200 or consent of the instructor. Provides additional linguistic aspects of American Sign language. Emphasizes vocabulary, structure and appropriate sign choices for fluency. Applies knowledge of ASL to the interpreting process. Lecture 3 hours per week.

**SCM 211-212 EXPRESSIVE INTERPRETING I-II (3 CR.) (3 CR.)** Prerequisite SCM 110. Develops skills in voice-to-sign interpreting. Provides feedback in sign production, appropriate sign selection, facial expression, body movements, and time lag. Lecture 2 hours per week. Laboratory 2 hours per week.

**SCM 230 INTRODUCTION TO INTERPRETING (3 CR.)** Introduces basic principles and practices of interpreting, focusing on the history of the profession, logistics of interpreting situations, regulatory and legislative issues, resources, and the Code of Ethics. Lecture 3 hours per week.

## **SOCIOLOGY (SOC)**

**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 208 SOCIOLOGY OF POPULAR CULTURES (3 CR.)** Focuses on historical and contemporary currents of social life. Includes nature of social trends, relationship between social trends and individual behavior, and reflection of cultural trends in the mass media. 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 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 Delinquency 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 curriculum. 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 (3 CR.) (3 CR.)** Prerequisite SPA 102 or equivalent. Continues to develop understanding, speaking, reading, and writing skills. May include oral drill and practice. 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 111-112 VOICE AND DICTION I-II (3 CR.) (3 CR.)** Enables students to improve pronunciation, articulation, and voice quality. Includes applied phonetics. Lecture 3 hours per week.

**SPD 130 INTRODUCTION TO THE THEATRE (3 CR.)** Surveys the principles of drama, the development of theatre production, and selected plays to acquaint the student with various types of theatrical presentations. 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 hours. Total 5 hours per week.

**SPD 135 STAGE MOVEMENT (3 CR.)** Presents the theory and practice of body movement as it relates to theatre production. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

**SPD 136 THEATER 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 233-234 REHEARSAL AND PERFORMANCE I-II (1-4 CR.) (1-4 CR.)** Explores various aspects of the theatre through involvement in college theatre production. Variable hours per week.

**SPD 249 STAGE MAKE-UP (1 CR.)** Presents principles and practices of make-up for the stage. Lecture 1 hr. Laboratory 1 hr. Total 2 hours per week.

**SPD 250 THE ART OF THE FILM (3 CR.)** Introduces the art of the film through a survey of film history; includes 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.

**SPD 285 THEATRE APPRENTICESHIP/ INTERNSHIP (1-6 CR.)** Enables students to learn production techniques through participation as apprentices or interns at a professional theatre. Prerequisite: divisional approval. Variable 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 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.

### **WELDING (WEL)**

**WEL 120 FUNDAMENTALS OF WELDING (3 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 2 hours. Laboratory 2 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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William R. Reid, Roanoke City  
Audrey M. Wheaton, Roanoke City

## ADMINISTRATIVE FACULTY

### Downs, Charles L.

*President of the College*  
B.A.--The George Washington University, 1958;  
M.A.--Florida State University, 1965;  
Ph.D.--University of Georgia, 1969

### Archer, J. Andrew

*Dean of Academic & Student Affairs, Professor*  
A.A.--Reinhardt Junior College, 1959;  
A.B.--Mercer University, 1961;  
M.A.--George Peabody College, 1965;  
Ph.D.--George Peabody College, 1972

### Blalock, Dwight E.

*Dean of Financial and Administrative Services, Associate Professor*  
B.S.--University of Alabama, 1966;  
M.S.--Virginia Commonwealth University, 1970

### Byrd, Michael D.

*Director, Business and Industrial Training Programs, Professor*  
A.A.S.--New River Community College, 1972;  
B.S.--Virginia Polytechnic Institute & State University, 1974;  
M.S.--Virginia Polytechnic Institute & State University, 1978

### Coleman, Ronald L.

*Director, Continuing Education, Professor*  
B.S.--Virginia Commonwealth University, 1965;  
M.Ed.--University of Virginia, 1969

### Emick, Mark Q., Sr.

*Administrative Assistant to the President/Director, College Support Services, Associate Professor*  
A.S.--Virginia Western Community College, 1969;  
B.S.--Virginia Commonwealth University, 1971;  
M.A.--Virginia Polytechnic Institute & State University, 1977;  
Ed.D.--Virginia Polytechnic Institute & State University, 1994

### Ewing, Larry E.

*Financial Aid & Veterans Affairs Officer, Professor*  
A.B.--Franklin & Marshall College, 1965;  
M.A.--The Pennsylvania State University, 1967;  
Ed.D.--Virginia Polytechnic Institute & State University, 1976

### Gentry, Carroll L.

*Chairman, Division of Business, Professor*  
B.S.--East Tennessee State University, 1966;  
M.B.A.--East Tennessee State University, 1967;  
C.A.G.S.--Virginia Polytechnic Institute & State University, 1978

### Hancock, F. Gordon

*Coordinator, Admissions Policies and Programs, Associate Professor*  
B.S.--Virginia Polytechnic Institute, 1963,  
M.E.--University of Virginia, 1977

### Hanson, David C.

*Director of Instructional Support Services, Professor*  
B.S.--Ball State University, 1974;  
M.A.--Ball State University, 1975;  
Ed.D.--Ball State University, 1980

### Hillman, David L.

*Coordinator, Library, Assistant Professor*  
B.A.--College of William & Mary, 1969;  
M.L.S.--University of Maryland, 1972

### Houston, Charles A.

*Director, Institutional Research, Professor*  
B.S.--University of Tennessee, 1964;  
M.M.--University of Tennessee, 1969;  
Ph.D.--Virginia Polytechnic Institute & State University, 1976

### Lindsay, Gloria A.

*Administrative Officer for Special Programs, Professor*  
A.A.S.--Isothermal Community College, 1971;  
B.T.--Appalachian State University, 1975;  
M.A.--Appalachian State University, 1976;  
Ed.D.--North Carolina State University, 1989

### Mays, Clarence C., Jr.

*Chairman, Division of Humanities, Professor (Temporary Reassignment to Director of Community Relations)*  
B.S.--University of Virginia, 1961;  
M.Ed.--University of Virginia, 1965;  
Ed.D.--University of Virginia, 1973

### Michie, Wayne R.

*Chairman, Division of Engineering/Industrial Technology, Associate Professor*  
A.A.S.--Roanoke Technical Institute, 1966;  
B.S.--Roanoke College, 1969;  
M.S.--Virginia Polytechnic Institute & State University, 1983

### Newell, Charles P.

*Administrative Officer for Business and Industrial Training Programs, Assistant Professor*  
B.S. -- Averett College, 1991;  
M.B.A. -- Averett College, 1993

### Salyers, William A., Jr.

*Coordinator, Learning Center, Associate Professor*  
A.S.--Dabney S. Lancaster Community College, 1970;  
B.S.--Eastern Mennonite College, 1971;  
M.S.--Radford University, 1978  
C.A.S. -- Hollins College, 1996

### Sargent, James E.

*Chairman, Division of Social Sciences & Public Service Technology, Professor*  
B.S.--Eastern Michigan University, 1964;  
M.A.--Michigan State University, 1968;  
Ph.D.--Michigan State University, 1972

### Wingfield, William C., Jr.

*Coordinator of Facilities Management, Associate Professor*  
B.S.--Virginia Polytechnic Institute and State University, 1979;  
M.B.A.--Averett College, 1992

### Zirkle, Benjamin F., III

*Chairman, Division of Math/Science and Health Technology Divisions, Associate Professor*  
B.S.--Roanoke College, 1965;  
M.S.--Florida State University, 1968

## FACULTY

**Abbatello, Donna J.**

*Assistant Professor, Administrative Support Technology*  
 B.S.--Bluefield State College, 1968;  
 M.A.--West Virginia College of Graduate Studies, 1977

**Adkins, Gary M.**

*Assistant Professor, Counselor*  
 B.S.--Virginia Polytechnic Institute & State University 1972;  
 M.A.--Virginia Polytechnic Institute & State University, 1976

**Arminio, Robert L.**

*Associate Professor, Architecture*  
 B.Arch.--University of Virginia, 1968

**Baker, J.W., Jr.**

*Assistant Professor, Electrical Engineering Technology*  
 A.A.S.--Roanoke Technical Institute, 1965;  
 B.S.--Virginia Polytechnic Institute & State University, 1971;  
 M.S.--Virginia Polytechnic Institute & State University, 1975

**Barnas, Martha S.**

*Associate Professor, Nursing*  
 B.S.N.--D'Youville College, 1977;  
 M.S.--SUNY at Buffalo, 1984;  
 M.Ed.--Canisius College, 1991

**Bass, James Louis, III**

*Assistant Professor, Biology*  
 B.S.--University of Tennessee, 1960;  
 M.A.--Vanderbilt University, 1977

**Bell, Joy D.**

*Coordinator of Student Activities Instructor, Counselor*  
 B.A.--Heidelberg College, 1977;  
 M.S.--Radford University, 1979

**Benson, G. Don**

*Professor, Physics*  
 B.S.--Texas Western College, 1964;  
 Ph.D.--Vanderbilt University, 1977

**Birmingham, Michael G.**

*Associate Professor, Business Management*  
 B.A.--St. Bonaventure University, 1967;  
 M.P.A.--University of Missouri, 1969

**Bolt, Patricia H.**

*Assistant Professor, Administrative Support Technology*  
 B.S.--Longwood College, 1961;  
 M.A.--Radford University, 1977

**Bonds, Ethel**

*Associate Professor, English*  
 B.A.--Bennett College, 1971;  
 M.A.--Virginia Polytechnic Institute & State University, 1973;  
 C.A.S.--Hollins College, 1992

**Branscom, Sallie D.**

*Associate Professor, Accounting*  
 B.S.--Radford University, 1957;  
 M.Ed.--University of Virginia, 1962

**Brown, Martha B.**

*Associate Professor, Administrative Support Technology*  
 B.S.S.A.--Women's College, University of North Carolina, 1957;  
 M.A.--East Carolina University, 1961

**Brusati, John F.**

*Associate Professor, Sociology*  
 A.B.--Southwestern College, 1962;  
 B.D.--Duke University, 1966;  
 M.S.--Radford University, 1971

**Burkholder, John B.**

*Associate Professor, English*  
 A.A.--Virginia Western Community College, 1973;  
 B.A.--James Madison University, 1975;  
 M.F.A.--University of North Carolina at Greensboro, 1977;  
 M.A.--Hollins College, 1980

**Callis, Tracy G.**

*Associate Professor, Information Systems Technology*  
 B.S.--Virginia Polytechnic Institute, 1963;  
 M.S.Ed.--Virginia Polytechnic Institute & State University, 1975;  
 C.A.G.S.--Virginia Polytechnic Institute & State University, 1977

**Capps, John S.**

*Professor, English*  
*(Temporary Reassignment to Interim Chairman, Division of Humanities)*  
 B.A.--Virginia Polytechnic Institute & State University, 1974;  
 M.A.--Virginia Polytechnic Institute & State University, 1977;  
 Ed.D.--Virginia Polytechnic Institute & State University, 1994

**Carter, Douglas, Jr.**

*Professor, Speech & Drama*  
 B.A.--University of Arizona, 1966;  
 M.A.--University of Arizona, 1969;  
 Ph.D.--Ohio University, 1983

**Carter, Mary Lynn**

*Assistant Professor, Librarian*  
 B.A.--Emory & Henry College, 1963;  
 M.L.S.--University of North Carolina, 1969

**Cecere, Thomas W.**

*Associate Professor, Microcomputer Studies*  
 B.S.--State University of New York, 1972;  
 M.S.--Rochester Institute of Technology, 1976;  
 Ph.D.--Indiana University, 1983

**Cheng, Fa-Hwa**

*Professor, Civil Engineering Technology*  
 B.S.--National Taiwan University, 1961;  
 M.S.--Virginia Polytechnic Institute & State University, 1966;  
 Ph.D.--Virginia Polytechnic Institute & State University, 1971

**Clower, Carol**

*Associate Professor, Counselor*  
 B.S.--Virginia Polytechnic Institute & State University, 1976;  
 M.A.--Radford University, 1978;  
 M.S.--Radford College, 1978

**Crawford, Robert J.**

*Associate Professor, Electronic Servicing*  
 A.A.S.--Virginia Western Community College, 1973;  
 B.S.--Virginia Polytechnic Institute & State University, 1983

**Crites, Richard W.**

*Associate Professor, Biology*  
 A.A.S.--Olney Community College, 1965;  
 B.S.--Eastern Illinois University, 1967;  
 M.S.--Eastern Illinois University, 1968

**Curtis, David S.**

*Professor, Art*  
 B.F.A.--East Carolina University, 1975;  
 M.F.A.--University of North Carolina at Greensboro, 1980;  
 C.A.S.--Hollins College, 1990

**Durham, Linda E.**

*Associate Professor, Music and English*  
 A.B.--Elon College, 1968;  
 M.M.--University of North Carolina, 1971

**Eads, Sally A.**

*Assistant Professor, History*  
 B.A.--Agnes Scott College, 1965;  
 M.A.--University of Virginia, 1967

**Edwards, Kenneth L.**

*Professor, Business, Finance and Economics*  
 B.S.--Virginia Polytechnic Institute & State University, 1971  
 M.B.A.--Virginia Polytechnic Institute & State University, 1978

**Elliott, Helen Yvonne**

*Professor, English*  
 B.S.--Radford University, 1968;  
 M.A.--Virginia Polytechnic Institute & State University, 1974;  
 CAS--Hollins College, 1986;  
 Ph.D.--University of North Carolina-Greensboro, 1994

**Fightmaster, James W.**

*Assistant Professor, Mathematics*  
 B.S.--Georgetown, 1957;  
 M.Ed.--University of Virginia, 1965

**Finton, Thomas E.**

*Assistant Professor, Radio/Television Technology*  
 B.A.--College of William & Mary, 1970;  
 B.A.--Virginia Polytechnic Institute & State University, 1976;  
 M.A.--University of Maryland, 1977

**Ford, Frances G.**

*Assistant Professor, Mathematics*  
 B.S.--Bryan College, 1974;  
 M.A.--University of North Carolina at Greensboro, 1988

**Gaynor, Richard J.**

*Professor, Mental Health Technology*  
 A.A.--Thomas Nelson Community College, 1972;  
 B.A.--Christopher Newport, 1974; M.A.--Radford University, 1976;  
 M.S.--Radford University, 1977

**Hampton, Norman A.**

*Assistant Professor, Information Systems Technology*  
 A.B.--West Virginia University, 1952

**Harpold, Donna J.**

*Associate Professor, Biology*  
 B.S.--Marietta College, 1971;  
 M.T.--Baptist Medical Center, 1980;  
 Ph.D.--Wake Forest University, The Bowman Gray School of Medicine, 1987

**Henderson, Michael C.**

*Student Support Services Counselor/Director*  
 B.A.--William & Mary, 1976;  
 M.Ed.--James Madison University, 1981;  
 C.A.G.S.--Virginia Polytechnic Institute & State University, 1987

**Hipp, J. Lee**

*Professor, Horticulture Technology*  
 A.B.--Lenoir Rhyne College, 1971;  
 B.S.--North Carolina State University, 1974;  
 M.S.--Virginia Polytechnic Institute & State University, 1978

**Hoffman, William E., Jr.**

*Assistant Professor, Electrical Engineering Technology*  
 A.A.S.--Roanoke Technical Institute, 1964;  
 B.S.--Roanoke College, 1971;  
 M.S.--Virginia Polytechnic Institute & State University, 1987  
 C.A.G.S. - Virginia Polytechnic Institute & State University, 1990

**Hofheinz, Rudolph H.**

*Associate Professor, Commercial Art*  
 B.S.--East Carolina University, 1975;  
 M.A.E.--East Carolina University, 1979

**Holtman, Ellen P.**

*Associate Professor, Biology*  
 B.A.--Mary Baldwin College, 1971;  
 M.A.Ed.--Virginia Polytechnic Institute & State University, 1977

**Hooven, James A.**

*Associate Professor, History*  
 B.A.--New Mexico Highlands University, 1965;  
 M.A.--New Mexico Highlands University, 1967

**Hooven, Judith L.**

*Assistant Professor, English*  
 B.A.--New Mexico Highlands University, 1963;  
 M.A.--New Mexico Highlands University, 1966

**Houseman, William Robert**

*Associate Professor, Welding*  
 A.A.S.--Virginia Western Community College, 1977

**Hutcherson, Anne B.**

*Associate Professor, Dental Hygiene*  
 A.S.--Old Dominion University, 1974;  
 B.S.--Old Dominion University, 1975;  
 M.S.--Old Dominion University, 1977

**James, David P., Jr.**

*Assistant Professor, Counselor*  
 B.S.--Virginia Polytechnic Institute, 1960;  
 M.S.--Radford University, 1969

**Johnson, Mary J.**

*Assistant Professor, Administrative Support Technology*  
 B.S.--Knoxville College, 1972;  
 M.S.--Virginia Polytechnic Institute & State University, 1987

**Johnston, Paula W.**

*Assistant Professor, Dental Hygiene*  
 B.S.--Longwood College, 1980;  
 B.S.--Medical College of Virginia, 1983

**Kiker, Pamela R.**

*Student Support Services Counselor*  
 B.S.--Virginia Commonwealth University, 1971;  
 M.E.--Virginia Commonwealth University, 1980

**Killian, John M.**

*Professor, Biology*  
 B.S.--Louisiana State University in New Orleans, 1965;  
 Ph.D.--Louisiana State University in New Orleans, 1971

**Krasnow, Rita J.**

*Professor, Sociology*  
 B.A.--Old Dominion University, 1969;  
 M.A.--University of Virginia, 1972;  
 Ph.D.--University of Virginia, 1984

**Lamanca, Shirl Duke**

*Assistant Professor, Radiologic Technology*  
 Certificate--Lewis-Gale School of Radiologic Technology, 1968;  
 A.A.S.--Virginia Western Community College, 1977;  
 B.S.--Roanoke College, 1983;  
 M.S.--Virginia Polytechnic Institute & State University, 1989

**Landrum, Larry S.**

*Associate Professor, Economics*  
 B.S.--Auburn University, 1968;  
 M.S.--Auburn University, 1971

**Lantz, Sherrye J.**

*Associate Professor, Art*  
 B.A.--Radford University, 1979;  
 M.F.A.--Radford University, 1982

**Livingston, David L.**

*Associate Professor, Electrical/Electronics Engineering Technology*  
 B.S.--Electrical Engineering, Old Dominion University, 1976;  
 M.E.--Electrical Engineering, Old Dominion University, 1978;  
 Ph.D.--Electrical Engineering, Old Dominion University, 1986

**Loritsch, Mary B.**

*Professor, Radiologic Technology*  
 B.S.--Radford University, 1972;  
 A.A.S.--Virginia Western Community College, 1974;  
 M.A.Ed.--Virginia Polytechnic Institute & State University, 1983  
 Ed.D.--Virginia Polytechnic Institute & State University, 1995

**Martin, Sarah J.**

*Instructor, Mathematics*  
 B.S.--Roanoke College, 1975;  
 M.A.Ed.--Virginia Polytechnic Institute & State University, 1977

**McDaniel, Margaret P.**

*Assistant Professor, English*  
 B.A.--Virginia Polytechnic Institute & State University, 1970;  
 M.A.--Virginia Polytechnic Institute & State University, 1971

**Miller, Howard G., Jr.**

*Associate Professor, Air Conditioning and Refrigeration*  
 B.S.--Virginia Polytechnic Institute & State University, 1970

**Mitchell, James L.**

*Associate Professor, Business Management*  
 B.A.--Western Kentucky University, 1968;  
 M.A.--Virginia Polytechnic Institute & State University, 1972

**Mulligan, Jennifer**

*Professor, Business Administration*  
 B.A.--Roanoke College, 1976;  
 J.D.--Wake Forest University School of Law, 1979

**Musgrove, Charles P.**

*Associate Professor, Mathematics*  
 B.S.--East Tennessee State University, 1967;  
 M.S.--Virginia Polytechnic Institute, 1969

**Music, Joyce N.**

*Assistant Professor, Administrative Support Technology*  
 B.S.--Radford University, 1971;  
 M.S.--Virginia Polytechnic Institute & State University, 1972

**Music, William O., Jr.**

*Assistant Professor, Physical Education*  
 B.S.--Lynchburg College, 1963;  
 M.S.--University of Tennessee, 1964

**Myers, Sandra W.**

*Associate Professor, Nursing*  
 B.S.N.--Virginia Commonwealth University, 1971;  
 M.A.--Virginia Polytechnic Institute & State University, 1983;  
 M.S.N.--University of Virginia, 1988

**Olsen, Thomas C.**

*Associate Professor, Biology*  
 B.A.--Virginia Military Institute, 1963;  
 M.S.--University of Alabama, 1971

**Owen, Susan R.***Professor, Nursing*

B.S.N.--University of Virginia, 1970;  
 M.Ed.--University of Virginia, 1975;  
 M.S.N.--University of Virginia 1986

**Owen, William C.***Professor, Psychology*

B.A.--University of Virginia, 1966;  
 M.Ed.--University of Virginia, 1970;  
 Ed.D.--University of Virginia, 1974

**Pack, Joel C.***Assistant Professor, Mathematics*

A.A.--Mars Hill Junior College, 1959;  
 B.S.--Roanoke College, 1963;  
 M.A.--Wayne State University, 1967

**Poole, Meredith J.***Associate Professor, English*

B.A.--Oberlin College, 1968;  
 M.A.--University of Virginia, 1971

**Poythress, James W.***Assistant Professor, Accounting*

B.A.--Virginia Polytechnic Institute & State  
 University, 1972;  
 M.B.A.--Virginia Polytechnic Institute & State  
 University, 1991

**Price, Patricia M.***Associate Professor, English*

B.A.--Mary Washington College, 1973;  
 M.A.--University of Virginia, 1975;  
 M.Ed.--University of Virginia, 1976;  
 Ed.D.--University of Virginia, 1991

**Protinsky, Marsha G.***Assistant Professor, Early Childhood Education*

B.S.--Kansas State University, 1972;  
 M.S.--Kansas State University, 1974

**Quinley, Patrick C.***Associate Professor, Counselor*

B.A.--James Madison University, 1975;  
 M.Ed.--James Madison University, 1976

**Rakes, L. Jeffrey***Assistant Professor, Radiologic Technology*

Certificate in Radiologic Technology--  
 Roanoke Memorial Hospital, 1969;  
 A.A.S.--Virginia Western Community College, 1977;  
 B.S.--Roanoke College, 1980

**Reinhard, Dawn M.***Assistant Professor, Chemistry*

B.S.--Loyola College, 1990;  
 Ph.D. (pending)--Virginia Polytechnic Institute  
 and State University, 1996

**Richardson, Martha F.***Student Support Services Counselor*

A.A.--Piedmont Virginia Community College, 1989;  
 B.A.--University of Virginia, 1990;  
 M.Ed.--University of Virginia, 1992;  
 Ed.S.--University of Virginia, 1994

**Russell, Sharri I.***Assistant Professor, Information Systems Technology*

B.S.--University of Missouri at Kansas City, 1978;  
 Master of Computer Studies--North Carolina State  
 University, 1983

**Schenkel, Jerry W.***Associate Professor, Information Systems Technology*

B.A.--Marietta College, 1976;  
 M.B.A.--University of Louisville, 1982

**Schultz, L. David***Associate Professor, Mathematics*

B.A.--University of California, 1967;  
 M.A.--University of Arizona, 1969  
 C.A.S.--Hollins College, 1993

**Seagle, Paula L.***Assistant Professor, Instructional Technology*

B.S.--Radford University, 1976  
 M.A.L.S. (Computer Science)--Hollins College, 1988

**Shepard, David E.***Associate Professor, Business Management*

B.S.--Virginia Commonwealth University, 1958;  
 M.B.A.--University of Virginia, 1962

**Shepherd, Betty Turner***Professor, Health*

B.S.N.--Duke University, 1967;  
 M.S.N.--University of Virginia, 1981;  
 A.N.P.C.--University of Virginia, 1982;  
 Ed.D.--Virginia Polytechnic Institute & State  
 University, 1985

**Sherman, Ruth A.***Assistant Professor, Mathematics*

A.A.S.--Paul Smiths College, 1981;  
 B.A.--State University of New York, 1983;  
 M.S.--Virginia Polytechnic Institute & State  
 University, 1986

**Sinha, Jabil R.***Professor, Chemistry*

B.S.--University of Dacca, Bangladesh, 1963;  
 M.S.--North Dakota State University, 1966;  
 Ph.D.--University of Georgia, 1972

**Starnes, John M.***Associate Professor, Mathematics*

B.S.--East Tennessee State University, 1960;  
 M.S.--East Tennessee State University, 1968

**Starnes, Patsy R.***Assistant Professor, Reading*

B.S.--East Tennessee State University, 1964;  
 M.A.--East Tennessee State University, 1966

**Strickland, Annette C.***Assistant Professor, Nursing*

B.S.N.--University of Virginia, 1979  
 M.S.N.--University of Virginia, 1988

**Stuckey, Linda P.***Assistant Professor, Business Management and  
Automated Accounting*

B.B.A.--Florida International University, 1975;  
 M.S.--Florida International University, 1977;  
 C.P.A.--Virginia, 1984

**Tate, Carol S.**

*Assistant Professor, Psychology*  
 B.S.--Radford University, 1969;  
 M.S.--Radford University, 1973

**Taylor, Anita L.**

*Assistant Professor, Nursing*  
 B.S.N.--Skidmore College, 1972;  
 M.S.N.--University of Florida, 1977

**Thomas, Barry L.**

*Assistant Professor, Physics*  
 A.S.--Virginia Western Community College, 1970;  
 B.S.--Old Dominion University, 1972;  
 M.S.--Old Dominion University, 1974

**Tucker, Ray B.**

*Associate Professor, Mathematics*  
 B.S.--Southern Illinois University, 1956  
 M.A.T.--Southeastern State College, 1966;  
 M.A.--University of Illinois, 1969

**Webb, David E.**

*Assistant Professor, Mechanical Engineering  
 Technology*  
 B.S.--University of Kentucky, 1979

**Welch, John D.**

*Associate Professor, Librarian*  
 B.A.--St. Vincent College, 1964;  
 M.L.S.--University of Pittsburgh, 1972

**Wilson, Roger C.**

*Associate Professor, Speech/Drama*  
 A.B.--Newberry College, 1966;  
 M.A.--Miami University, 1968;  
 M.S.--Florida State University, 1973;  
 C.A.G.S.--Virginia Polytechnic Institute & State  
 University, 1980

**Wimmer, Woodrow M.**

*Assistant Professor, Accounting*  
 B.S.--University of Virginia, 1970;  
 C.P.A.--Virginia, 1973; M.S.--Radford University,  
 1980

**Winters, William E.**

*Associate Professor, Government & Administration  
 of Justice*  
 B.A.--Catawba College, 1966;  
 M.A.--Lehigh University, 1968;  
 L.L.B.--LaSalle University Extension, 1971;  
 M.S.--Radford University, 1974;  
 A.A.S.--Virginia Western Community College, 1979

## LAY ADVISORY COMMITTEES

### **Acting**

Fred Fuller  
Drama Department, Patrick Henry High School

James Galloway, Professional Actor/Director

Carol Galvin, President, Showtimers Theatre

Sue Gotwalt, AdvantEdge Services

Jere Hodgins, Executive and Artistic Director  
Mill Mountain Theatre

Joyce Kernodle, Marketing Director  
Roanoke Symphony

Thomas Mason, Professional Actor

Richard Rose, Artistic Director, Barter Theatre

### **Administration of Justice**

James P. Brice  
Retired Roanoke Judge  
General District Court

Chris Ann Bryant  
Forensic Scientist  
Western Regional Forensic Lab

John H. Cease  
Chief of Police  
Roanoke County

Harry T. Haskins, Jr.  
Chief of Police (Retired)  
City of Salem

M. David Hooper  
Chief of Police  
City of Roanoke

Alvin Hudson  
Sheriff  
City of Roanoke

James T. Phipps, Director  
Alcohol Safety Action Program  
Fifth Planning District

### **Building Construction Trades**

Barry Baird  
Executive Vice President  
Avis Construction Company

Mark Brickey, President  
All-Star Septic Service & Plumbing

James H. Buck, President  
James Buck Plumbing

E.M. Clifton  
Vice President  
G.J. Hopkins, Inc.

David W. Light  
Dealer-Sales Manager  
AES of Roanoke, Inc.

Paul W. Monaghan  
Vice President  
Varney Electric Company, Inc.

Richard E. Pervarski  
Engineering Superintendent  
Roanoke Gas Company

Clayton L. Preas, Engineer  
American Electric Power

Robert B. Rose  
General Manager  
Virginia Sprinkler Company

Jeff Shawver  
Combination Inspector  
Roanoke City

James White, Teacher  
Roanoke City Public Schools

Lawrence H. Vest  
Vice President  
Templeton-Vest, Inc.

### **Business Technology**

Lyndell B. Brooks  
Vice President  
Lewis-Gale Clinic

Larry Cecil  
Training Coordinator  
Yokohama Tire Company

Timothy Conway  
Manager, Information Systems  
ITT Corporation

Charles Cornelison  
Attorney at Law  
Copenhaver, Ellett, Cornelison

Joyce Dunn  
Systems Analyst, Casualty Claims  
Norfolk Southern Corporation

Peter Geisler, Manager  
Marketing Communications  
General Electric Company

Ann Duvall Harrell, Sr. Vice  
President, Retail Div. Head  
Crestar Bank

Claudia Lambert  
Personnel Representative (Retired)  
Atlantic Companies

James Lee  
Certified Public Accountant  
Brown, Edwards & Company

**Business Technology Cont'd**

David P. Mitchell  
Assistant Vice President  
Atlantic Companies

Jane O'Keffe  
Human Resources  
Roanoke Gas Company

Wilson Potts, Retired  
Norfolk Southern Corporation

Coy Renick  
Director, Human Resources  
Vitramon Corporation

Larry Riggins  
Network Specialist  
Advance Auto Company

Gill R. Roseberry  
Vice President  
Salem Bank & Trust Company

Jackie Scruggs  
Human Resources Assistant  
American Electric Power

Coy Weaver  
Workstation Support Administrator  
City of Roanoke

**Business-Industrial Supervision**

Steve Angle, Director  
Human Resources  
The Lane Company

Mike Byrd, Director  
Business-Industrial Training  
Virginia Western Community College

Nancy Gladden, Director  
Human Resources  
York International

James Mitchell, Associate Professor  
Business Division  
Virginia Western Community College

Timothy Prillaman  
Advance Auto Parts

Gardner Smith, Director  
General Services  
Roanoke County

Brenda Divers-Wiley  
Director of Education/Medical Library  
Lewis-Gale Hospital

**Commercial Art**

Keith Austin  
Lamar Advertising

Ronald Doty  
Art Supervisor  
Double Envelope Corporation

Roger Green, Imaging Leader  
Progress Press Inc. of Roanoke

Julie McDowell  
Julie McDowell Design

David Mikula, President  
Inprint, Inc.

**Construction Technology**

Byron Dickson, Architect  
Byron Dickson Associates

Dawn Felton  
Systems Engineer  
Litton Poly-Scientific

John Garland, Engineer  
Spectrum Engineers

David C. Hammond, Vice President  
Hayes, Seay, Mattern & Mattern

Donald D. Pritchard, AIA  
Sheretz, Franklin, Crawford, Shaffner

Ronald Martin, Architect  
Martin & Associates

John Parker  
Secretary-Treasurer  
T.P. Parker & Son, Ltd.

Pete Sensabaugh  
District Construction Engineer  
Virginia Department of Transportation

**Dental Hygiene**

Gail Burton, R.D.H.

Charles E. Conklin, D.D.S.  
Director of Dental Services  
Roanoke Memorial Rehab Center

Richard Joachim, D.D.S.

Lee Jones, D.D.S.  
Hospital Dentistry  
Roanoke Memorial Hospital

Martha Kelleher, R.D.H.

Richard A. Lynch, D.D.S.

**Dental Hygiene Cont'd**

Kim Preston, R.D.H.

Renita Randolph, D.D.S.

Martha Hall Roberson, R.D.H.

R. Douglas Ross, D.D.S.

H. Patrick Russell, D.D.S.

Alan Shernoff, D.D.S.  
Director of Dental Service  
VA Medical Center

Student Representative  
Appointed Annually

Yolanda Weaver, R.D.H.

**Early Childhood Development**

Sandra Carroll, Executive Director  
Greenvale School

Phyllis Cundiff, Principal  
Grandin Court Elementary School

Rosemarie Dillon, Director  
First Baptist Child Development Center

Jeanine Hamilton, Director  
2nd Presbyterian Weekday School

Dana Lee, Licensing Specialist  
Piedmont Regional Office  
Department of Social Services

Sandra Morris, Ph.D.  
Early Childhood Consultant

Barbara Putney, Parent Coordinator  
Child Health Investment Program (CHIP)

Cleo Sims, Director  
Head Start-Total Action Against Poverty

Andy Stimmel, Ph.D.  
Dept. of Family & Child Development  
VPI & SU

Alice Welford, Teacher/Director  
Child Care Curr. & Lab. School  
Arnold Burton Technology Center

Linda Wright, Principal  
Penn Forest Elementary School

**Electrical/ Mechanical Engineering Technology**

Clayton Abbott, Chief Engineer  
Graham White Manufacturing Company

Joseph Anderson  
Maelstrom Graphics

Lawrence Beard  
Manager-Training & Development  
General Electric Company

Nelson Daniel, Roanoke Regional Manager  
Blue Ridge Clinical Equipment Service

William T. Drennan  
Quality Assurance Manager  
Vitramon

Robert E. Gasparoli  
Engineer (Retired)

Joseph Hylton, Control Engineer  
General Electric Company

Stephen L. Jamison, Human Resources Director  
American Electric Power

Deana B. Marion  
Senior Program Administrator  
IC Layout Director  
ITT - Gallium Arsenide Technology Center

Monroe Marshall  
Manager, Tool Design & Equipment  
Medeco Security Locks, Inc.

Larry Morris, President  
Quality Manufacturing

James Shelton, Manager  
Engineering Construction Equipment Group  
Ingersoll-Rand

Thomas J. Spurlock, III  
Vice President Operations  
Tele-Path Industries, Inc.

Sam Zerwekh  
Chief Electronics Engineer  
Graham White Manufacturing Co.

**Fire Science**

Jack Beville, Instructor  
Virginia Western Community College

Jimmy Doran  
Emergency Medical Instructor  
Virginia Western Community College

Crosby Griddle  
Roanoke Fire & Rescue

Dan W. Hall, Chief Training Officer  
Salem Fire Department

Woody Henderson  
Salem Fire & Rescue

Mike Lewis  
Roanoke County Fire & Rescue

Winston Simmons  
Roanoke City Fire & Rescue

Joey T. Stump, Battalion Chief of Training  
Roanoke County Fire and Rescue

Claude Webster, Director  
Emergency Services  
Franklin County

**Food Service Management**

Martha Farrell, Support Specialist  
Food Services  
Roanoke County Public Schools

Pauline Holloway, Supervisor  
Food Services  
Roanoke County Public Schools

Gary Hunt, Supervisor  
Food Services  
Franklin County Public Schools

Jane Parks, Supervisor  
Food Services  
Bedford County Public Schools

Tommy Powers, Supervisor  
Food Services  
Roanoke City Public Schools

**Horticulture Technology**

John Arbogast  
Horticulture Extension Agent  
VPI Extension, Roanoke

Marilyn Arbogast  
Roanoke City Horticulturist  
Department of Parks and Recreation

Chris Barlow  
Owner-Manager  
Garden Arts

Janette Hensley  
Horticulture Instructor  
Botetourt Vocational-Technical School

Alan McDaniels  
Horticulture Department, VPI&SU

Cindy Morgan  
Owner-Manager  
Cindy's Greenery

Anthony Payne  
VWCC Arboretum Advisory Council

Ed Staley, Owner  
Horticultural Services

Kathy Tomlinson  
Exotic Cultivations

Cindy Turner  
Horticulture Instructor  
Arnold Burton Vocational School

Gretchen Van Tassel  
Horticulturist  
Roanoke Country Club

**Legal Assistant**

Susan Bane  
Roanoke County Attorney's Office

Matthew W. Broughton, Esq.  
Gentry, Locke, Rakes & Moore

The Honorable G.O. Clemens  
Judge, Circuit Court, Roanoke County

Charles O. Cornelison  
Copenhaver, Ellett, Cornelison

Roy V. Creasy, Esq.  
Attorney-at-Law

William H. Fralin, Jr., Esq.  
Jolly, Place, Fralin & Prillaman

Carroll Gentry, Chairman  
Business Division  
Virginia Western Community College

Lonna R. Hogan  
Woods, Rogers & Hazelgrove, P.C.C.

Yvonne Ingram  
Legal Assisting Student  
Virginia Western Community College

Charlie Nelson  
Roanoke City General District Court

Michael K. Quinn, Esq.  
Taxation Department  
Norfolk Southern Corp.

Beth Reed  
Gentry, Locke, Rakes & Moore

Coy Renick  
Director, Human Resources  
Vitramon Corporation

Laura Skeen  
Coleman & Massey, P.C.

Lois Sumpter  
Woods, Rogers & Hazlegrove, P.C.C.

**Medical Transcriptionist**

Joan Caldwell  
Carilion Roanoke Memorial

Debbie Harless, Supervisor  
Medical Transcription  
Columbia Lewis-Gale Medical Center

A.J. Swartzel, Supervisor  
Medical Transcription  
Lewis-Gale Clinic

Teresa Utt  
Director of Medical Transcription and  
Health Information  
Lewis-Gale Hospital

Sandy Workman  
Independent

**Mental Health Technology**

Betty Burke, Director  
Mental Retardation Services/  
Mental Health Services

Gudrun Freeman  
Behavioral Science Associates

Robert Gilhooly, Director  
Substance Abuse Technical Services

Rebecca Hale, Coordinator  
Mental Health Associate Program  
Veterans Medical Center

Mark Johnson  
Juvenile Detention Home

Fred Roessel, Ph.D.  
Executive Director  
Mental Health Services

**Motorcycle Safety**

Bruce Biondo, Motorcycle Program Manager  
Department of Motor Vehicles

Richard Kemp, Owner  
Cycle Center

Robert Krause, Instructor  
Motorcycle Safety

Carlton Mabe, Coordinator  
Motorcycle Maintenance

David Miller  
Roanoke County Sheriff Department

J. Allan Moore, Investigator  
Department of Motor Vehicles

Dennis Phillips, Coordinator  
Motorcycle Safety  
Central Virginia Community College

**Nursing**

Sharon Baldwin, RN, MSN  
Associate Chief of Nursing Service Education  
Veterans Administration Medical Center

Cheryl Bennett, RN, MSN  
Team Leader Capability Development  
Carilion Health System Inpatient Care Redesign

Margaret R. Dewald-Link, Ph.D.  
Administrator  
Arcadia Health Care

Brenda Divers-Wiley, RN, BSN, MA Ed.  
Director of Education/Medical Library  
Lewis Gale Hospital

Janet Hardy-Boettcher, RN, C, Ph.D.  
Chairman, School of Nursing  
Radford University

Sandra O. Moore, RN  
Roanoke City Health Department

Maxine Smith, RN  
Director of Nurses  
Richfield Nursing Center

**Occupational Safety**

Jack Beville, Instructor  
Virginia Western Community College

Michael Byrd, Director of Business-Industrial Training  
Virginia Western Community College

Murray Buchanan  
Safety Director  
Virginia Department of Transportation

Jimmy Doran  
Emergency Medical Instructor  
Virginia Western Community College

Richard Warner, Owner  
Warner Contracting

**Practical Nursing - Certificate Program**

Sharon Baldwin, RN, MSN  
Associate Chief of Nursing Service Education  
Veterans Administration Medical Center

Cheryl Bennett, RN, MSN  
Team Leader Capability Development  
Carilion Health System Inpatient Care Redesign

Margaret R. Dewald-Link, Ph.D., Administrator  
Arcadia Health Care

Brenda Divers-Wiley, RN, BSN, MA Ed.  
Director of Education/Medical Library  
Lewis Gale Hospital

Janet Hardy-Boettcher, RN, C, Ph.D.  
Chairman, School of Nursing  
Radford University

Sandra O. Moore, RN  
Roanoke City Health Department

Maxine Smith, RN, Director of Nurses  
Richfield Nursing Center

**Radio/Television Production Technology**

Dillard Childress  
Production Manager  
Blue Ridge Public Television

Joe Dupuis, Video Specialist  
Sunshine Images

Larry Dyer  
Vice President & General Manager  
Blue Ridge Public Television

Mark Early  
Telecommunications Instructor  
Franklin County Schools

Carl Guffey  
Director of Operations and Engineering  
WDBJ-7

**Radio/Television Production Technology Cont'd**

Jane W. James  
Supervisor of Media Services  
Roanoke County School System

Gretchen Shine, General Manager  
Cox Cable Roanoke

Elaine Simpson, Production Assistant  
RTV Channel 3

Randy Smith  
Vice President and General Manager  
WSLS Park Broadcasting

**Radiography**

Lee Anthony, Ph.D.  
Physics Associates

Janice Bishop, Director of Health Occupations  
Christiansburg High School

Carol Y. Daniels, R.T.(T)  
Radiation Oncology Department  
Cancer Center of Southwest Virginia

Sylvia Dickerson, R.T.R.  
Technical Director, Dept. of Radiology  
Carilion Roanoke Community Hospital

Janice Dudley, R.T.(R), Director  
Lewis-Gale Clinic, Valley View Medical Center

Joann Hines, Chief Technologist, Radiology Service  
Veterans Administration Medical Center

Abram Patterson, M.D., Medical Director  
Department of Radiology  
Carilion Roanoke Community Hospital

Pat Smith, Counselor  
Cave Spring Junior High School

Betty Spurlock, Lead Technologist  
Carilion Roanoke Community Hospital

Delores Webb, Radiology Department Manager  
Lewis-Gale Hospital

Fonda Wilson, R.T.R.  
Radiology Department  
Lewis-Gale Hospital

**Railroad Operations Technology**

David Cobbs, Director  
EEO & Workforce Planning  
Norfolk Southern Corporation  
Norfolk, VA

Joseph L Gelmini, Director  
Workforce Development  
Norfolk Southern Corporation  
McDonough, GA

Ben Helmandollar, Director  
Roanoke Tech Prep Consortium  
Virginia Western Community College

William C. Laub  
Vice-President & General Manager  
Graham-White Manufacturing Co.

Lori A. Leonardos, Employment Officer  
Norfolk Southern Corporation  
Norfolk, VA

Linda Lilly, Administrative Coordinator  
Accounting Operations  
Norfolk Southern

Bob Lockery, Employment Manager  
Norfolk Southern Corporation  
Norfolk, VA

Gwen Marlowe, Director of Staffing & EEO  
CSX Transportation  
Jacksonville, FL

Robert H. Melotti, Senior EEO Manager  
CSX Transportation  
Jacksonville, FL

Marjorie Skidmore, Job Service Manager  
Virginia Employment Office

Craig Smith, Director  
Mechanical Facilities & Training  
Norfolk Southern Corporation

Barry Wells, Trainmaster  
Transportation Department  
Norfolk Southern Corporation

Betty Whitley, Training Coordinator  
Marketing Department  
Norfolk Southern Corporation

**Sign Language**

Betsy Dennis  
Roanoke Department of Parks and Recreation

David James, Counselor  
Virginia Western Community College

Richard Linn  
Virginia Association of the Deaf

Frances MacGregor  
Goodwill, Tinker Mountain

Wayne Moore, Instructor  
Virginia Western Community College

Cecil Prillaman  
Virginia Department for the Deaf and Hard of Hearing

Delila L. Spradlin, Instructor  
Virginia Western Community College

Brad Staton  
Virginia Department for the Deaf and Hard of Hearing

Betti Thompson  
Deaf Services Center

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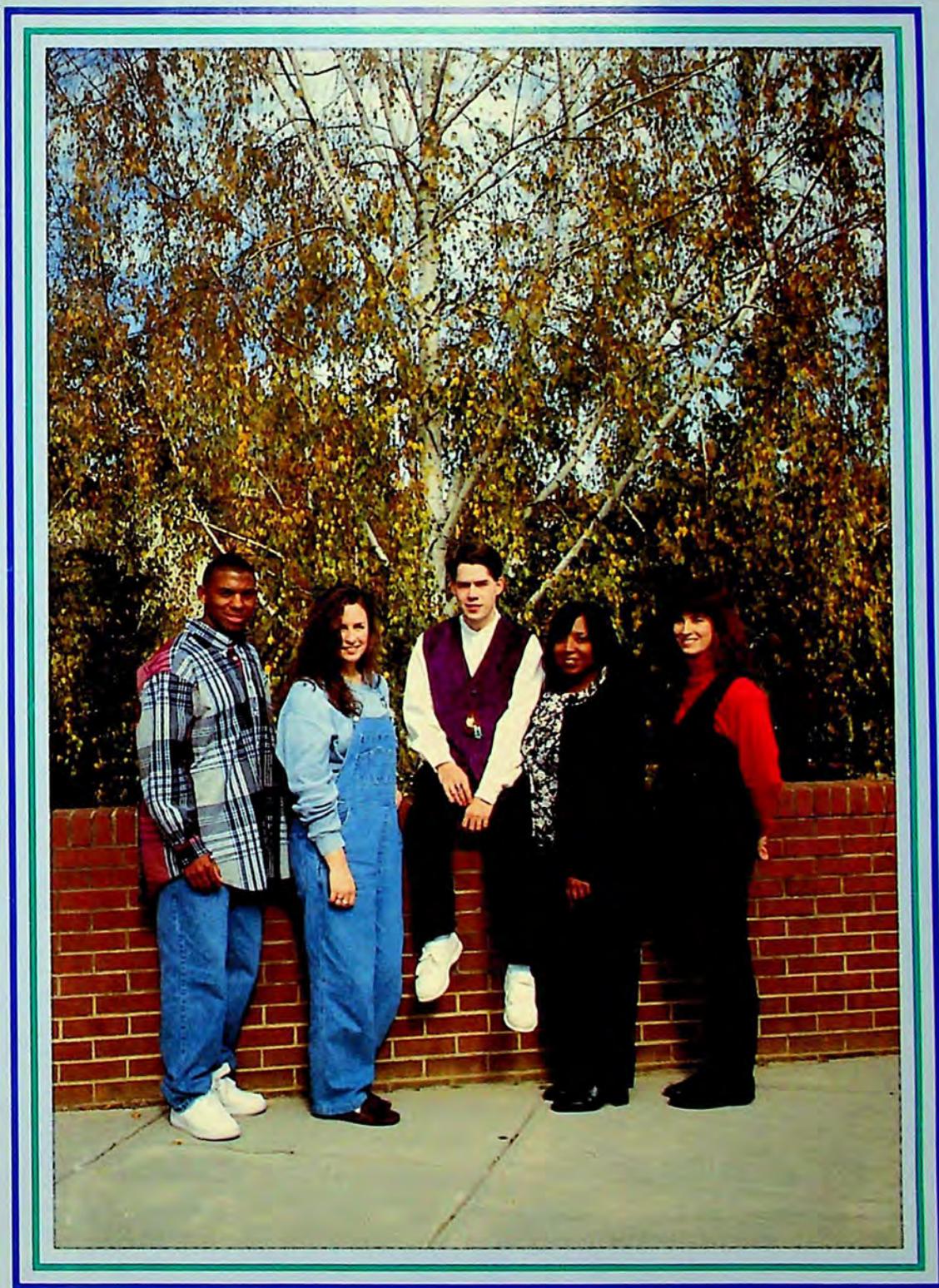
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# VIRGINIA WESTERN

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## COMMUNITY COLLEGE



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**VIRGINIA WESTERN COMMUNITY COLLEGE**

3095 Colonial Avenue, S.W.

P.O. Box 14007

Roanoke, Virginia 24038