GLENNS CAMPUS
12745 College Drive, Glenns, VA 23149-2616
804-758-6700
693-5660 from Gloucester and Mathews
Toll-free in Virginia: 1-800-836-9381
Fax: 804-758-3952 • TDD: 804-758-6760

WARSAW CAMPUS
52 Campus Drive, Warsaw, VA 22572-4272
804-333-6700
443-3550 from Essex
775-9783 from King George
Toll-free in Virginia: 1-800-836-9379
Fax: 804-333-0106 • TDD: 804-333-6760

King George Off-campus Site
Located at King George High School • 540-775-0087

RCC Educational Foundation
P.O. Box 923, Warsaw, VA 22572-0923
804-333-6707 • Toll-free in Virginia: 1-877-722-3679

www.rappahannock.edu

Rappahannock Community College does not discriminate on the basis of race, color, national origin, religion, age, gender, or disability in employment or in the provision of any program or activity operated by the college. For assistance in contacting the campus Affirmative Action Officer, please call the Human Resources Office at 804-758-6728.

Rappahannock Community College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award the associate degree. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Rappahannock Community College.

The statements and provisions in this catalog are not to be regarded as an irrevocable contract between the student and the college. The college reserves the right to change any of the provisions, schedules, programs, courses, or fees.
# Associate of Arts and Sciences Transfer Degree

## Arts and Science Transfer CURRICULUM

### First Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>HIS</td>
<td>Approved Transfer History</td>
<td>3</td>
<td>0</td>
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<tr>
<td>MTH</td>
<td>Approved Transfer Mathematics</td>
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<td>0</td>
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</tr>
<tr>
<td>MTH</td>
<td>Approved Transfer Natural Science²</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>SDV 100</td>
<td>Orientation</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>HLT/PED</td>
<td>Health/Physical Education Elective</td>
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<td>2</td>
<td>1</td>
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<tr>
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### Second Semester

<table>
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<td>0</td>
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<tr>
<td>MTH</td>
<td>Approved Transfer Mathematics</td>
<td>3</td>
<td>0</td>
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<tr>
<td>MTH</td>
<td>Approved Transfer Natural Science²</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>ITE 115</td>
<td>Introduction to Microcomputer Software</td>
<td>3</td>
<td>0</td>
<td>3</td>
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### Third Semester

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<th>Lab</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Approved Transfer Humanities/Fine Arts³</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>Approved Transfer Social Science³</td>
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<td>SPD 100</td>
<td>Public Speaking</td>
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<td>Approved Transfer Elective¹</td>
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<td>Approved Transfer Elective¹</td>
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<td>HLT/PED</td>
<td>Health/Physical Education Elective</td>
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### Fourth Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Transfer Humanities/Fine Arts³</td>
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<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Approved Transfer Social Science³</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<td>Approved Transfer Elective¹</td>
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<tr>
<td>Approved Transfer Elective¹</td>
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<tr>
<td>Approved Transfer Elective¹</td>
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<td><strong>Total</strong></td>
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<td><strong>0</strong></td>
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</tbody>
</table>

**Total Minimum Credits** 62

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¹ In selecting courses, students should seek the advice of their counselor or advisor in order to assure courses taken are consistent with transfer or career goals.

² Typical courses include ECO, GEO, HIS, PLS, PSY, SOC

³ Typical courses include HUM, MUS, ART, PHI, REL, ENG (Lit)

⁴ Typical courses include BIO, CHM, PHY, GOL

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### PURPOSE

The Associate of Arts and Sciences Transfer Degree Program is designed for persons who plan to transfer to a four-year college or university to complete a baccalaureate degree. By selecting appropriate electives, students should be able to complete the lower division requirements for a variety of majors at the baccalaureate level. Examples of baccalaureate majors this program may prepare students to transfer in are:

- Business Administration
- Liberal Arts
- Science
- Social or Behavioral Sciences
- Teacher Prep/Education

In order to be assured that courses transfer to meet lower division requirements at the specific institution the student plans to transfer to and the major anticipated, students should consult their academic advisor to schedule their courses. Students are also encouraged to investigate guaranteed admission agreements (GAA), available for many colleges and universities in Virginia, contact their selected college’s admissions office and consult their selected college’s transfer guide if one is available. Counselors and academic advisors can assist with locating these resources.

### ADMISSION REQUIREMENTS

In addition to the admission requirements established for the college, entry into this program requires proficiency in English, reading, and mathematics. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental courses in English, mathematics, and/or reading. These developmental course credits do not apply toward the degree. Students required to take two or more developmental courses will need additional semesters to complete the degree.

### PROGRAM REQUIREMENT

This curriculum should provide sufficient flexibility to meet lower division requirement for a variety of majors at a variety of colleges and universities and provide students success in transferring to obtain a baccalaureate degree. It is extremely important for students to work closely with their advisors to assure their successful transfer.
Associate of Applied Science

Majors in:

- Business Management

- General Engineering Technology
  with specializations in
  - Electronics
  - Industrial Electricity

- Nursing

- Protective Services Technology
  - Administration of Justice

*Programs of Study

For the most recent updates to Programs of Study, please refer to the website: www.rappahannock.edu
## BUSINESS MANAGEMENT

### PURPOSE

The Business Management program is designed to meet the needs of recent high school graduates as well as experienced employees who want to acquire new, upgrade, or supplement existing skills and knowledge in business.

Students who wish to pursue an education in the area of Business Management have several options from which to choose. The curriculum offerings are designed to enable students to begin with a career studies certificate or one-year certificate in various career-related areas. Students can apply certificate credits toward an Associate of Applied Science degree in Business Management. (66 credits)

### ADMISSION REQUIREMENTS

In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward degrees or certificates. Students required to take two or more developmental courses will need additional semesters to complete any program.

### GRADUATION REQUIREMENT

The Business Management program follows general graduation requirements as stated in this catalog.

### PROGRAM OUTCOMES

Graduates of the Business Management program at Rappahannock Community College should be able to:

1. Use terminology common to the business environment for effective communication.
2. Analyze/resolve problems common to entry-level business positions.
3. Utilize basic management principles in first-line supervisory situations.
4. Analyze a managerial situation to determine fact from opinion.
5. Analyze a business situation financially, organizationally, and behaviorally.
6. Utilize good human relations skills in a managerial role.
7. Apply computer skills to the solution of management-related problems.

### OPPORTUNITIES FOR EMPLOYMENT

Depending upon the career-related electives chosen, the successful graduate should be eligible for employment in one or more of the following occupations: Bookkeeper, Administrative Assistant, Management Trainee, Office Supervisor, Networking Trainee, or Small Business Manager.

### BUSINESS MANAGEMENT CURRICULUM

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ACC 111</td>
<td>Accounting I</td>
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<tr>
<td>BUS 100</td>
<td>Introduction to Business</td>
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<td>3</td>
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<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>MTH 120</td>
<td>Introduction to Mathematics</td>
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<td>0</td>
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<td>Orientation</td>
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<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
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<tr>
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<td>Accounting II</td>
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<tr>
<td>BUS 200</td>
<td>Principles of Management</td>
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<td>BUS 125</td>
<td>Applied Business Mathematics</td>
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<td>Spreadsheet Software</td>
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<th>Third Semester</th>
<th>Course #</th>
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<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Elective¹</td>
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<td>ECO 120</td>
<td>Survey of Economics²</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<td>HLT/PED</td>
<td>Health/Physical Education Elective</td>
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<td>1</td>
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<tr>
<td>Elective¹</td>
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<tr>
<td>BUS 241</td>
<td>Business Law I</td>
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<th>Fourth Semester</th>
<th>Course #</th>
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<tr>
<td>Elective¹</td>
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<td>BUS 285</td>
<td>Current Issues in Management⁶</td>
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<td>ITE 130</td>
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<td><strong>Semester Total</strong></td>
<td></td>
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</tbody>
</table>

**Total Minimum Credits** 66

¹In selecting courses, students should seek the advice of their advisor in order to assure courses taken are consistent with transfer or career goals. Students are encouraged to complete one of the Career Studies Certificates or One Year Certificates as part of the degree program.

²May substitute an approved transfer course in place of this non-transfer course.

³Typical courses include ECO, GEO, HIS, PLS, PSY, SOC

⁴Typical courses include HUM, MUS, ART, PHI, REL, ENG (Lit)

⁵May substitute SDV106.

⁶Requires successful completion of 40 or more credits prior to enrollment.
GENERAL ENGINEERING TECHNOLOGY

Specialization: 
Electronics Technology

PURPOSE
The General Engineering Technology Program is designed to prepare individuals to meet the growing needs of high technology industries for trained technicians. Courses in the Electronics specialization are designed to develop competent engineering technicians who, upon graduation will have the academic and technical preparation in the electronics field to enter the demanding workforce, to pursue additional on-the-job training, or to enter an advanced program of study in Electronics Technology.

OCCUPATIONAL OBJECTIVES
Electronics Technician, Electronics Laboratory Technician, Engineer Aide, Sales Engineer, Computer Technician, Industrial Engineering Technician, Industrial Electronics Technician, and Design Engineering Technician.

Students who are enrolled in the Northrop Grumman Co-op will complete two cooperative work experiences at Northrop Grumman Newport News, one in each of the summer terms in which they are enrolled. This work experience will replace one of the courses in the program. NGNN or any other co-op students must follow the advice of their advisor and the co-op coordinator to ensure appropriate order of courses.

ADMISSION REQUIREMENTS
In addition to the admission requirements established for the college, entry into this program requires proficiency in English, reading, and mathematics. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental courses in English, mathematics, and/or reading. These developmental course credits do not apply toward the degree. Students required to take two or more developmental courses will need additional semesters to complete the degree.

GRADUATION REQUIREMENTS
The General Engineering Technology Degree, Electronics Specialization, follows general graduation requirements as stated in the catalog. Co-op students consult with the co-op coordinator for requirements specific to their co-op program.

<table>
<thead>
<tr>
<th>Electronics Technology Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td><strong>Course #</strong></td>
</tr>
<tr>
<td>ETR 113</td>
</tr>
<tr>
<td>ELE 120</td>
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<tr>
<td>ENG 111</td>
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<tr>
<td>MTH 163</td>
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<tr>
<td>SDV 100</td>
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<tr>
<td>HLT/PED</td>
</tr>
<tr>
<td>ELE/ETR/DRF111²</td>
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<td><strong>Semester Total</strong></td>
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<tr>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td><strong>Course #</strong></td>
</tr>
<tr>
<td>ETR 114</td>
</tr>
<tr>
<td>ETR 203</td>
</tr>
<tr>
<td>ETR 271</td>
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<tr>
<td>MTH 164</td>
</tr>
<tr>
<td>ELE/ETR/DRF231²</td>
</tr>
<tr>
<td><strong>Semester Total</strong></td>
</tr>
</tbody>
</table>

| **Fall Semester**                |
| **Course #** | **Course Title** | **Lec.** | **Lab** | **Credits** |
| ETR 272   | Microcomputer Electronics II | 3        | 3       | 4          |
| ELE 143   | Programmable Controllers I | 3        | 3       | 4          |
| PHY 201   | General College Physics with lab | 3        | 3       | 4          |
| ECO 120   | Survey of Economics¹ | 3        | 0       | 3          |
| HLT/PED   | Elective              | 0        | 2       | 1          |
| ETR 198   | Project/Co-op I³     | 2        | 0       | 2          |
| **Semester Total**              | **14**    | **11**  | **18** |
| **Spring Semester**             |
| **Course #** | **Course Title** | **Lec.** | **Lab** | **Credits** |
| ETR 204   | Electronic Devices II³ | 3        | 3       | 4          |
| BUS 236   | Communication in Management¹ | 3        | 0       | 3          |
| ETR 298   | Project/Co-op II³     | 2        | 0       | 2          |
| Approved Social Science Elective⁴ | 3        | 0       | 3          |
| Humanities Elective⁵            | 3        | 0       | 3          |
| **Semester Total**              | **14**    | **3**   | **15** |

Total Minimum Credits: 69

¹This non-transfer course may be replaced by a transferable course. See advisor.
³DRF 111 and 231 are requirements of the NGNN Co-op Program.
²Students in the NGNN Co-op will replace this 4-credit course with two 2-credit summer internships at NGNN.
⁴This requirement may be satisfied by successfully completing a course in one of the following disciplines: HIS, GEO, PLS, PSY, SOC or other approved social science course.
⁵This requirement may be satisfied by successfully completing a course in one of the following disciplines: ART, ENG (Lit), HUM, PHI, REL, or an approved humanities course.

PROGRAM OUTCOMES
Graduates of the General Engineering Technology program should have the ability to:
1. Engage in learning contemporary engineering issues;
2. Understand the fundamental scientific principles associated with engineering, including the knowledge of their limitations and their applications to particular problems;
3. Apply the experimental method of observing phenomena and seeking explanations to devise experiments and interpret results;
4. Design a system, component, or process to meet desired needs; and
5. Communicate effectively the impact of an engineering solution in a societal context.
GENERAL ENGINEERING TECHNOLOGY

Specialization:
Industrial Electricity

PURPOSE
The General Engineering Technology Program is designed to prepare individuals to meet the growing needs of high technology industries for trained technicians. Courses in the Industrial Electricity specialization are designed to develop competent engineering technicians who, upon graduation will have the academic and technical preparation in the electronics field to enter the demanding workforce, to pursue additional on-the-job training, or to enter an advanced program of study in Electrical Engineering Technology.

OCCUPATIONAL OBJECTIVES
Industrial Electricity Technician, Industrial Electricity Laboratory Technician, Engineering Aide, Sales Engineer, Computer Technician, Industrial Engineering Technician, and Service Technician.

PROGRAM REQUIREMENTS
The Industrial Electricity Specialization of General Engineering Technology is a two-year curriculum that combines a core of academic and basic engineering course work with specialized studies in Industrial Electricity Technology.

ADMISSION REQUIREMENTS
In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward the degree. Students required to take two or more developmental courses will need additional semesters to complete the degree.

GRADUATION REQUIREMENTS
The General Engineering Technology Degree, Industrial Electricity Specialization follows general graduation requirements as stated in this catalog.

PROGRAM OUTCOMES
Graduates of the General Engineering Technology program at Rappahannock Community College should have the ability to:

1. Engage in learning contemporary engineering technology issues;
2. Understand the fundamental scientific principles associated with engineering, including the knowledge of their limitations and their applications to particular problems;
3. Apply the experimental method of observing phenomena and seeking explanations to devise experiments and interpret results;
4. Design a system, component, or process to meet desired needs; and
5. Communicate effectively the impact of an engineering solution in a societal context.

Industrial Electricity Curriculum

First Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETR 113</td>
<td>AC/DC Fundamentals I</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ELE 120</td>
<td>Electrical/Electronic Survey</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MTH 163</td>
<td>Precalculus I</td>
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<td>3</td>
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<td>SDV 100</td>
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Second Semester

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Third Semester

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<td>ECO 120</td>
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Fourth Semester

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<td>BUS 236</td>
<td>Communication in Management²</td>
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Total Minimum Credits 68

¹In selecting courses, students should seek the advice of their advisor in order to assure courses taken are consistent with transfer or career goals.
²May substitute an approved transfer course in place of this non-transfer course.
³Typical courses include ECO, GEO, HIS, PLS, PSY, SOC
⁴Typical courses include HUM, MUS, ART, PHI, REL, ENG (Lit)
NURSING PROGRAM

Degree: Associate in Applied Science
Length: 5 semesters

PURPOSE
The Associate Degree in Nursing (ADN) program at RCC is designed to prepare the students to assume the role of a professional nurse in a variety of clinical settings. At the completion of the ADN program, the student will be able to integrate legal, ethical and professional values with their nursing skills as they apply the nursing process to patient care.

Upon satisfactory completion of this program, the student will be eligible to take the examination required for licensure as a registered nurse (RN).

OCCUPATIONAL OBJECTIVES
Include registered nurse positions in hospitals, long term care facilities, Health Departments, School Systems and other comparable health care facilities and agencies.

ADMISSION REQUIREMENTS
Students admitted into the program will complete the general requirements, including those listed below, before prior to beginning the clinical component.

• Completion of college placement tests in reading, writing and mathematics.
• Completion of all RCC developmental course work prescribed as a result of RCC placement tests through MTH 03 and ENG 03 and ENG 05.
• One unit each of high school Algebra, Biology and Chemistry with a final grade of “C” or better, or their equivalents: BIO 01 – Developmental Biology and CHM 01 – Developmental Chemistry. (Any student considering pursuing a Bachelor’s Degree in Nursing should consult the advisor regarding the appropriate biology and chemistry preparation.)
• A minimum accumulative grade point average of 2.5
• Completion of Anatomy and Physiology (8 Credit hours) or enrollment in NAS 161 or NAS 162. (Students who have A&P taken more than 7 years prior to program application must take an NLN accreditation test)
• Completion within the past 7 years of a 3 credit computer applications class (such as ITE 115) or pass a computer skills test.
• Completion within 3 years of a Nursing Pre-entrance Exam within the 45th percentile or higher. Students whose test scores are deficient must satisfactorily complete an individually prescribed program before retaking the test. Applicants who have already completed a four year degree are exempt from this examination.
• Complete and submit to the nursing program head an application to the nursing program and complete an interview per application instructions by the designated time in the spring preceding the fall start of the program. (see nursing link on RCC webpage)

PROGRAM REQUIREMENTS
• Attend orientation program in summer prior to the fall start of clinical nursing courses.
• Health Record Requirement: Physical and dental examinations, including immunizations, must be completed prior to the start of fall clinical nursing courses. The required medical forms will be provided at orientation. Applicants must be free of any physical or mental condition that might adversely affect their acceptance or performance as nurses. More detailed information is provided in the Student Nursing Handbook.
• CPR Certification (American Heart Association, “BLS for the Healthcare Provider”) is required of all students prior to entry into NUR 111. Information, including a schedule of CPR classes, will be provided at the nursing program orientation.
• Maintain a grade of “C” or higher in all courses in NUR curriculum.
• Maintain professionalism in both campus and clinical settings, especially in attitude and responsibility. Failure to meet this requirement can result in termination from the program.
• If a student has no previous medical/nursing training, a certified nursing assistant course is recommended prior to entry into NUR 111.
• Students are responsible for purchasing the required clinical uniforms and nametags through the college designated supplier.
• Standardized tests are to be taken after each semester/module in nursing. The cost for these tests will be the responsibility of the student.
• Legal Restrictions: The State Board of Nursing has the authority to deny licensure to any applicant who has violated any of the provisions of 54.1-3007 of the Code of Virginia. A candidate having any violations other than minor traffic violation should discuss the matter with the nursing program head prior to admission.
• Criminal Background Checks and Drug Screens: Prospective students are hereby notified that there is a background check required of each student. There is a specific contract for the background check and information will be given at orientation. Some of the clinical sites also require a urine drug screen. The costs of the background check and the drug screen are the responsibility of the student.
• The College does not assume responsibility for accidents/incidents which occur in clinicals; nor does it provide any student health services. The student assumes financial responsibility for accidents/incidents requiring medical attention.
• Licensed Practical Nurses who meet program admission requirements will submit a separate application for advanced placement. A LPN to ADN transition course must be successfully completed before being accepted into the ADN program.

PROGRAM PROGRESSION
• The student must complete all support courses either preceding or concurrently with the appropriate nursing course as indicated in the curriculum plan.
• The student is required to complete a sequence of course and learning experiences provided at the college and selected community agencies. The nursing faculty will observe and evaluate the student’s performance in nursing and with direct patient care in the clinical sites.

Nursing Program Description and
Curriculum Continues on Next Page
• A student must obtain permission from the program head to continue in the nursing program under the following conditions: 1) repeating a course with a grade below “C” or 2) withdrawal from a nursing course. In accordance with VCCS policy, a student may not enroll in the same course more than twice. Further policies for the program are listed in the Nursing Student Handbook. The handbook is given to all entry level nursing students and is available in the nursing office for review.
• Clinical agencies reserve the right to dismiss a student from their agency at any time with due cause.
• The student releases the hospital, its agents, and employees from any liability for any injury or death to himself or damage to his property arising out of the clinical agreement or use of hospital’s facilities.

GRADUATION REQUIREMENTS
The Associate of Applied Science follows the guidelines of the RCC graduation requirements. In addition, the application for the State Board of Nursing Licensure Exam must be completed and returned to the admissions department with the application for graduation packet.

ACCREDITATION
Rappahannock Community College is accredited by the Southern Association of Colleges and Schools. The Associate Degree of Nursing Program is provisionally approved by the Virginia State Board of Nursing.

STUDENT ESTIMATED COST
Tuition
69 credits X $90.00 a credit hour = $6210.00
Uniforms and Shoes.......................... 400.00
Books................................................. 1,500.00
Achievement Tests ............................. 500.00
Clinical Supplies (stethoscope, bandage scissors, etc.) .. 100.00
PDA.................................................. 300.00
Criminal Background Checks/Drug Screens.......................... 80.00
Medical & Dental Examinations.................. 500.00
Graduation and Licensure.......................... 500.00
Travel to Clinical Agencies.............. Variable
Total Estimated Costs $10,090.00 + travel

Associate Degree in Nursing Curriculum

First Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
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<tr>
<td>MTH 126</td>
<td>Math for Allied Health</td>
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<tr>
<td>NAS 161</td>
<td>Health Science I</td>
<td>3</td>
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<td>NUR 111</td>
<td>Nursing I</td>
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<td>Orientation to Nursing</td>
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Semester Total 14 12 18

Second Semester

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<td>NAS 162</td>
<td>Health Science II</td>
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<td>NUR 112</td>
<td>Nursing II</td>
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Semester Total 10 12 14

Third Semester

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<td>SOC 200</td>
<td>Principles of Sociology</td>
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<td>NUR 230</td>
<td>Pharmacology</td>
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Semester Total 9 0 9

Fourth Semester

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<tbody>
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<td>NUR 202</td>
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<td>NUR 245</td>
<td>Maternal Newborn</td>
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<td>NUR 246</td>
<td>Parent/Child</td>
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<td>NUR 226</td>
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<td>Health/Physical Education1</td>
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Semester Total 10 14 15

Fifth Semester

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<td>NUR 208</td>
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<td>NUR 247</td>
<td>Psychiatric/Mental Health</td>
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<td>NUR 254</td>
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Semester Total 10 9 13

Total Minimum Credits for AAS Degree in Nursing 69

Recommended classes for electives:

1 HLT 143 Medical Terminology, HLT 230 Nutrition
2 HUM Elective: Art, Music, History, Philosophy, Religion classes
* All classes must be taken in the sequence listed on the above RN curriculum. Each semester is a pre-requisite for the next semester with the exception of the SOC and PSY.
** Due to the heavy curriculum, students are advised to take as many of the non-nursing classes as possible before entering into the clinical portion of the curriculum.
Pre-requisites: High School graduate or GED; High School Algebra, Biology & Chemistry with a “C” or higher; Any developmental courses identified as needed after placement tests; ITE 115 or equivalent Pre-admission Nursing test with acceptable scores (NLN 45 or better)
PROTECTIVE SERVICES TECHNOLOGY

Major: Administrative Justice
Length: Four Semesters (two years)

PURPOSE
Protective Services Technology encompasses the career fields of law enforcement, corrections, and private security. The associate of applied science degree is designed to meet both the academic and technical needs of those employed in the field of Protective Services. This two-year program will provide knowledge and skills for the beginning employee as well as the more experienced employee desiring career advancement. After taking the required general education and major classes, students may select up to twelve credits of electives in law enforcement, corrections, and private security.

Law enforcement and correctional officers who have completed formal training academies may receive advanced standing credit for training experiences that are equivalent to the administration of justice courses. Students must contact the curriculum advisor for evaluation of training credits.

OCCUPATIONAL OBJECTIVES
Correctional Officer; Police Officer; Deputy Sheriff; Investigator; Community Corrections Officer; Correctional Supervisor; Police Supervisor; State Trooper; Security Specialist.

ADMISSION REQUIREMENTS
In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward degrees or certificates. Students required to take two or more developmental courses will need additional semesters to complete any program.

<table>
<thead>
<tr>
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<tr>
<td>Course #</td>
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</tr>
<tr>
<td>ADJ 100</td>
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<td>ENG 111</td>
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<td>ADJ 236</td>
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<td>ADJ 105 (or SOC 235)</td>
<td>The Juvenile Justice System (Juvenile Delinquency)</td>
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<td>ADJ 116</td>
<td>Special Enforcement Topics</td>
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<td>SPD 100 (or BUS 236)</td>
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<td>ADJ 211</td>
<td>Criminal Law, Evidence and Procedures³</td>
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<td>Courts and the Administration of Justice³</td>
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<td><strong>Semester Total</strong></td>
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<td>15</td>
<td>2</td>
<td>16</td>
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</tbody>
</table>

Total Minimum Credits 66

¹ In selecting courses, students should seek the advice of their advisor in order to assure courses taken are consistent with transfer or career goals.
² May substitute an approved transfer mathematics course.
³ Typical courses include ECO, GEO, HIS, PLS, PSY, SOC.
CERTIFICATE PROGRAMS
One-year Certificates • Career Studies Certificates

One-year Certificates
- Administrative Support
- Bookkeeping/Accounting
- Law Enforcement
- Practical Nursing

Career Studies Certificates
- Banking
- Culinary Arts
- Electrician
- EMS
- Entrepreneurship
- HVAC
- Industrial Electricity/Electronics
- Instructional Technology
- Leadership in Organizations
- Marine Trades
- Microcomputer Applications
- Nurse Aide
- Welding: Arc and Gas

ADMINISTRATIVE SUPPORT
One-Year Certificate
Length: Two semesters

PURPOSE
To train persons for full-time employment in an office-related environment. With the rapid growth of industry and business in Virginia and with the steady demand for qualified administrative assistants in this region, there is a need for trained support personnel.

OCCUPATIONAL OBJECTIVES
Clerical Assistant; Data Entry Technician; Receptionist, Data Entry Keyer, Office Clerk-General Word Processor.

ADMISSION REQUIREMENTS
In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward degrees or certificates. Students required to take two or more developmental courses will need additional semesters to complete any program.

PROGRAM REQUIREMENTS
Administrative Support is a one-year program combining instruction in the many subject areas required for competence in administrative support for business, government, industry and other organizations. Approximately one half of the program will include courses in administrative systems with the remaining courses in related subjects, general education, and electives. Students who receive a grade lower than C in any Administrative Support (AST) class may be required to repeat the course and to earn a grade of C or higher before registering for the next course in the sequence.

Students successfully completing this program are awarded a Certificate in Administrative Support.

Administrative Support Certificate CURRICULUM

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
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<tr>
<td>MTH 120</td>
<td>Introduction to Mathematics1</td>
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<td>Keyboarding I</td>
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<td>BUS 100</td>
<td>Introduction to Business</td>
<td>3</td>
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<td>3</td>
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</tr>
<tr>
<td>ITE 115</td>
<td>Intro. to Computer Concepts and Applications3</td>
<td>0</td>
<td>0</td>
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<tr>
<td>SDV 106</td>
<td>Preparation for Employment2</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 236</td>
<td>Communication in Management1</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>AST 102</td>
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<tr>
<td>AST 141</td>
<td>Word Processing I</td>
<td>3</td>
<td>0</td>
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<tr>
<td>AST 243</td>
<td>Office Administration I</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>ITE 140</td>
<td>Spreadsheet Software</td>
<td>4</td>
<td>0</td>
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<td></td>
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<td>32</td>
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</tr>
</tbody>
</table>

1 May substitute an approved transfer course in place of this non-transfer course.
2 May substitute SDV100.
BOOKKEEPING/ACCOUNTING
One-Year Certificate

Length: Two semesters

PURPOSE
To train persons for full- or part-time employment in bookkeeping.

OPPORTUNITIES FOR EMPLOYMENT:
Accounts Receivable Clerk; Accounts Payable Clerk; Bookkeeper; Cash Receipts Clerk; Cash Payments Clerk; Bill and Account Collectors, Bookkeeping, Accounting, and Auditing Clerks, Payroll and Timekeeping Clerks

ADMISSION REQUIREMENTS
In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward degrees or certificates. Students required to take two or more developmental courses will need additional semesters to complete any program.

PROGRAM REQUIREMENTS
Bookkeeping/Accounting is a one-year program which meets the Virginia Community College System general education requirements for certificate programs. It also provides basic bookkeeping/accounting training. Approximately one half of the program will include accounting courses at the college level.

Students successfully completing this course with an overall grade point average of C are awarded a Certificate in Bookkeeping/Accounting.

Bookkeeping/Accounting Certificate CURRICULUM

First Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>MTH 120</td>
<td>Introduction to Mathematics</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ACC 111</td>
<td>Accounting I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>ACC 124</td>
<td>Payroll Accounting</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>SDV 106</td>
<td>Preparation for Employment 2</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<td></td>
<td><strong>14</strong></td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112</td>
<td>College Composition II</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Applied Business Mathematics</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ACC 112</td>
<td>Accounting II</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
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<td>ACC 215</td>
<td>Computerized Accounting</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITE 140</td>
<td>Spreadsheet Software</td>
<td>4</td>
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<tr>
<td><strong>Semester Total</strong></td>
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<td><strong>17</strong></td>
<td><strong>0</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

Total Minimum Credits 31

1 May substitute an approved transfer course in place of this non-transfer course.
2 May substitute SDV100.
# LAW ENFORCEMENT

## One-Year Certificate

**Length:** Four-semester part-time program

### PURPOSE

The certificate in law enforcement is designed for practitioners in law enforcement and associated fields who desire to take only those courses which relate directly to their employment needs. However, students who fail to demonstrate an ability to meet academic standards may be advised to enroll in appropriate classes which are designed to provide the background necessary for academic proficiency.

### OCCUPATIONAL OBJECTIVES

Police Officer; Private Investigator; Deputy Sheriff; Private Security Officer; Corrections Officer

### ADMISSION REQUIREMENTS

In addition to the admission requirements established for the college, entry into this program requires proficiency in English, mathematics, and reading. Students who do not meet entry requirements, or whose placement test scores indicate a need for further preparation, will be placed in the appropriate developmental studies courses in English, mathematics, and/or reading. These developmental course credits do not apply toward degrees or certificates. Students required to take two or more developmental courses will need additional semesters to complete any program.

### PROGRAM REQUIREMENTS

The law enforcement certificate program is designed to improve the job-related skills of the person engaged in law enforcement. Students will be advised as to which courses are most applicable to their field of interest and will, upon completion of 34 credits in the curriculum, be awarded a Certificate in Law Enforcement.

### PROGRAM NOTES

All courses must be approved by the Law Enforcement Program advisor. Graduates of the Virginia State Police Basic Training Academy and the Law Enforcement Officers Training Standards Course may receive advanced standing credit for some program requirements. Additional credits may be received for relevant and qualified in-service criminal justice seminars and courses. Students must be enrolled in the program in order to have previous law enforcement training evaluated.

#### Law Enforcement Certificate CURRICULUM

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ADJ 100</td>
<td>Survey of Criminal Justice</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>SDV 100</td>
<td>Orientation</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>Approved Social Science Elective¹</td>
<td>3</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>ADJ 201</td>
<td>(or ADJ 140) Criminology</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENG 112</td>
<td>College Composition II</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>ADJ 105</td>
<td>Juvenile Justice System</td>
<td>3</td>
<td>0</td>
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<td>ITE 115</td>
<td>Basic Computer Literacy</td>
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<td>HLT/PED</td>
<td>Health/Physical Education Elective</td>
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<tr>
<td><strong>Fourth Semester</strong></td>
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<td></td>
<td>ADJ 227</td>
<td>Constitutional Law for Justice Personnel</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<td></td>
<td></td>
<td>Approved Elective¹</td>
<td>3</td>
<td>0</td>
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<tr>
<td></td>
<td>HLT/PED</td>
<td>Health/Physical Education Elective</td>
<td>0</td>
<td>2</td>
<td>1</td>
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<tr>
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<td></td>
<td><strong>Semester Total</strong></td>
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<td><strong>Total Minimum Credits</strong></td>
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<td>36</td>
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</tbody>
</table>

¹ In selecting courses, students should seek the advice of their counselor or advisor in order to assure courses taken are consistent with transfer or career goals.

² Typical courses include ECO, GEO, HIS, PLS, PSY, SOC
PRACTICAL NURSING
One-Year Certificate

Length: Three semesters (one year)

Purpose
The certificate in practical nursing is designed to prepare selected students to qualify as practical nurse members of the health team in a variety of health service facilities. On successful completion of the program students are eligible to apply to take the NCLEX-PN (National Council Licensure Exam-Practical Nurse) which is the currently approved licensing exam for practical nursing in Virginia.

Occupational Objectives:
Employment opportunities for the Licensed Practical Nurse include nursing and staff positions in clinics, hospitals, nursing homes, health departments, home health agencies, prisons, and physicians’ offices.

Admission Requirements and Prerequisites
In addition to the requirements for admission to the college, the applicant must meet the following prerequisites for admission to the practical nursing program:
- Graduation from high school or satisfactory completion of the General Education Diploma (GED).
- Be eligible for ENG 111 by current placement criteria.*
- Be eligible for NUR 135 by current placement criteria.*
- Completion of high school biology or BIO 01 with a C or better average.
- Cumulative grade point average of 2.5.
- Completion of NET (Nurse Entrance Test) Admission Examination with passing scores in math skills and reading comprehension and Program Admission Packet.
- Completion of the special physical and dental examination required for students in Health Technology including the immunization schedule. Applicants must be free of any physical or mental condition that might adversely affect their acceptance or performance as nurses.

The Virginia Board of Nursing has the authority to deny license to any applicant who has violated any of the provisions of 54.1-3007 of the Code of Virginia. Any student entering the nursing program who has committed any illegal offenses other than minor traffic violations should discuss these matters with the nursing program director for clarification prior to admission.

In all cases, the recommendation of the admission committee is the final determinant for admission to the Practical Nursing Program. All admission requirements must be completed prior to entry into the program.

The Practical Nursing Program is open to men and women who provide evidence of interest, motivation, and aptitude in the area of health care and especially in direct patient care.

Program Progression
The student must complete all support courses either preceding or concurrently with the appropriate nursing course as indicated in the curriculum plan. Students must complete all curricular courses with a C or better.

The student is required to complete a sequence of courses and learning experiences provided at the college and selected community agencies such as special and general hospitals, nursing homes, clinics, physicians’ offices and comparable facilities. The nursing faculty will observe and evaluate the student’s suitability for nursing and direct patient care. A student may not withdraw from a nursing course more than one time.

Further program policies are listed in the Practical Nursing Student Handbook which is provided to all students accepted in the program and is available in the director’s office for review.

Clinical Contracts:
Individual contracts are in effect with each affiliate clinical agency. These contracts differ in the requirements made of students. The general stipulations are as follows:
- Clinical agencies reserve the right to dismiss a student from their agency at any time with due cause. This will be done with advance notice except in an emergency.
- Proper uniform must be worn.
- Published policies of hospital must be adhered to.
- Immunizations must be current.
- Student releases hospital, its agents and employees from any liability for any injury or death to the student or damage to the student’s property arising out of agreement or use of hospital’s facilities.
- The student is financially responsible for any medical care required while in the clinical setting.

Contracts for each agency are available in the nursing office and may be reviewed by students upon request.
Financial and Program Requirements

Students are responsible for providing their own transportation to and from the various clinical and social agencies utilized throughout the program for observational and direct care learning experiences.

In addition to college tuition, the student will need to purchase textbooks, uniforms, including white hose and shoes, nursing pin, and stethoscope. The student will also have to pay fees for achievement and other standardized testing associated with the program, and will need to have a watch with second hand, pen light, and scissors.

All students entering the program will be required to undergo a background check and drug screening prior to admittance to the clinical sites.

### Practical Nursing Certificate CURRICULUM

#### First Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 120</td>
<td>Terminology</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>PNE 155</td>
<td>Body Structure and Function</td>
<td>3</td>
<td>0</td>
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<td></td>
<td>Approved Information Technology Elective</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>PNE 161</td>
<td>Nursing in Health Changes I</td>
<td>3</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>NUR 135</td>
<td>Drug Dosage Calculation</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>SDV 100</td>
<td>Orientation</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Principles of Sociology I</td>
<td>3</td>
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<td>3</td>
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#### Second Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNE 162</td>
<td>Nursing in Health Changes II</td>
<td>6</td>
<td>15</td>
<td>11</td>
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<tr>
<td>PSY 230</td>
<td>Developmental Psychology</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>PNE 173</td>
<td>Pharmacology</td>
<td>1</td>
<td>0</td>
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<tr>
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<td>15</td>
<td>18</td>
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#### Third Semester

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLT 110</td>
<td>Concepts of Personal and Community (or HLT 230)</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td></td>
<td>Health (or Principles of Nutrition and Human Development)</td>
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<td></td>
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</tr>
<tr>
<td>PNE 145</td>
<td>Trends in Practical Nursing</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>PNE 163</td>
<td>Nursing in Health Changes III</td>
<td>4</td>
<td>12</td>
<td>8</td>
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<tr>
<td></td>
<td>Semester Total</td>
<td>8</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Total Minimum Credits 48
Career Studies Certificate

Programs of Study

- Banking
- Culinary Arts
- Electrician
- Emergency Medical Services (EMS)
- Entrepreneurship
- Heating Ventilation Air Conditioning (HVAC)
- Industrial Electricity/Electronics
- Instructional Technology
- Leadership in Organizations
- Marine Trades
- Microcomputer Applications
- Nurse Aide
- Welding: Arc and Gas

PROGRAM CONDITIONS

Career studies program options are developed and implemented as community needs are identified and institutional resources permit. Normally, courses which are associated with the various program options may be offered when all the following conditions are met:

1. justifiable student enrollment;
2. adequate facilities available on or off campus;
3. qualified instructors available; and
4. adequate financial resources available.

The flexibility of the option approach provides for the activation or the deactivation of program options depending upon the above factors.

LENGTH

Variable (9 to 29 semester hours)

PURPOSE

A significant percentage of the student population served by the community college consists of adult part-time students ordinarily taking courses offered during the evening hours.

Many adult students seek post-secondary programs of study that are less than the conventional one- or two-year programs designed primarily for the full-time student population of the college. Many occupational, industrial, or adult-interest areas do not typically require a one-year certificate or a two-year degree.

The career studies certificate program is a response to the short term occupational training needs of many adults in the region.

These programs are based on a series of condensed specialized curricular options. These options represent a wide variety of occupational and academic course areas.

The options within this program are intended to represent the minimum amount of college course work considered representative for these fields of study. Each program option is designed as a distinct “mini-curriculum” within a broader range of educational possibilities.

ADMISSION REQUIREMENTS

Admission to the career studies certificate program is based on the general requirements for admission to the college. Students with deficiencies in general education may require developmental studies. The part-time student is expected to select one of the available program options during admission and registration.

Traditional financial aid generally is not available to students enrolled in career studies certificate programs. Information on other funding opportunities (scholarships and grants) is available from the financial aid office or the counseling office on either campus.

PROGRAM REQUIREMENTS

The career studies certificate curriculum includes selected specialized courses within each program option. The range of course credits varies between the program options from a minimum of nine semester credits to a maximum of 29 semester credits.

Upon satisfactory completion of one of the program options, the student will receive the career studies certificate. Students of the college may earn more than one certificate as program option requirements are satisfied.
**BANKING Career Studies Certificate**

**Length: 23 Credits**

**PURPOSE**
To develop and improve skills necessary to work in the banking industry and to provide an opportunity for those in the banking industry to advance in their careers.

**OPPORTUNITIES FOR EMPLOYMENT**
Careers in the banking business, such as teller, loan officer and/or branch manager.

**ADMISSIONS REQUIREMENTS**
Applicants must meet the general admission requirements of the college.

### Bank Accounting Course List

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lec.</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 111</td>
<td>Accounting I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>FIN 110</td>
<td>Principles of Banking</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>FIN 125</td>
<td>Law and Banking: Principles</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>FIN 256</td>
<td>Marketing for Bankers</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>BUS 236</td>
<td>Communications in Management</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ECO 120</td>
<td>Survey of Economics</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>FIN 240</td>
<td>Money and Banking</td>
<td>3</td>
<td>0</td>
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</tr>
<tr>
<td>FIN 195</td>
<td>Topics: Ethics for Bankers</td>
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</table>

**Total Minimum Credits** 23

1. May substitute an approved transfer course in place of this non-transfer course.

**PROGRAM REQUIREMENTS**
Students are required to earn a C or better in all courses to be awarded the Career Studies Certificate in Banking.

**PREREQUISITES**
Placement test scores indicating readiness for MTH 120 or higher and ENG 111 or higher.

---

**ELECTRICIAN Career Studies Certificate**

**Length: 13 Credits**

**PURPOSE**
The General Engineering Technology Electrician Career Studies Certificate offers students with no prior knowledge of electricity or electrical systems the basic theories and practical training necessary for entry to the workforce. The program provides a working understanding of electrical circuits and wiring methods.

**OCCUPATIONAL OBJECTIVES**
Students completing this program will be prepared to enter the workforce as Electrician’s helper. Further experience in this field can lead to apprenticeship and eventual certification as an Electrician. Starting salary for Electrician’s helper ranges from $12 to $25 an hour.

### ELECTRICIAN Career Studies Certificate Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
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<tbody>
<tr>
<td>ELE 120</td>
<td>Electrical/Electronic Survey</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ELE 131</td>
<td>National Electrical Code I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ELE 127</td>
<td>Residential Wiring Methods</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>DRF 135</td>
<td>Electrical/Electronics Blueprint Reading</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ETR 101</td>
<td>Electrical/Electronic Calculations I</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Minimum Credits** 13

**ADMISSION REQUIREMENTS**
Applicants must meet the general admission requirements of the college.

**PROGRAM REQUIREMENTS**
Students are required to earn a minimum grade of C in all courses to be awarded the Electrician Career Studies Certificate.

---

**Culinary Arts (please see next page)**
CULINARY ARTS Career Studies Certificate

Length: 29 Credits

PURPOSE
The Culinary Arts Certificate program option is designed to provide a foundation in food production and the culinary arts field. There is continued industry demand for qualified Chefs and Food Service Managers, with the restaurant industry making up one of the major employers in the College's service region. This Program is designed to give individuals technical education in culinary arts and food service management, and will prepare students for immediate employment upon graduation.

OCCUPATIONAL OBJECTIVES
The Culinary Arts Career Studies Certificate prepares students to enter the following positions: Broiler Cook, Fry/Sauté Cook, Pantry Cook, Soup and Sauce Cook, and Vegetable Cook.

ADMISSION REQUIREMENTS
Admission into the Culinary Arts career studies certificate program is selective. Students admitted into the program will have completed the following before the confirmation of admission into the program:
1. Completion of college placement tests in reading, writing and mathematics,
2. Completion of all RCC developmental coursework prescribed as a result of RCC placement tests through MTH 02 and ENG 03 and ENG 05,
3. Completion of ENG 111 with a grade of C or better,
4. A minimum grade point average of 2.5,
5. One year experience in the food service industry.

PROGRAM REQUIREMENTS
1. Attend an orientation program prior to the Spring HRI 106,
2. Maintain professionalism in both course and restaurant settings, especially in attitude and responsibility. If not maintained, it can result in termination from the program.
3. Acquire and maintain uniforms and equipment. These items are required and are the responsibility of the student. They may be purchased through the college designated supplier.
4. The College does not assume responsibility for accidents/incidents which occur in restaurant settings; nor does it provide any student health services. The student assumes financial responsibility for accidents/incidents requiring medical attention.
5. Students are required to earn a C or better in all courses to be awarded the Career Studies Certificate in Culinary Arts.

PROGRAM PROGRESSION
1. Students will take the first semester of coursework on campus in the fall semester at Rappahannock Community College.
2. In October, students will apply for admission to the program.
3. Students will be provisionally admitted, with admission status confirmed after posting of Fall grades.
4. Students will be notified of their admission status by mail before the start of the spring semester.
5. The spring semester of the program will be held at the Tartan Golf Club in Weems, Virginia. Hours of instruction will be individually arranged with the instructor.
6. Attendance is critical. Absences are excused only in extraordinary circumstances. Students who arrive late twice will be dismissed from the program. Students who are absent once will be dismissed from the program.
7. Students who satisfactorily complete the spring semester are eligible for externships in regional restaurants. The externships run from May through October. Students will arrange their externships individually with the program director.

STUDENT ESTIMATED COSTS
Tuition 29 credits X $80.00.....$2320.00
Uniforms ..............................................300.00
Instruments and Supplies.................1,500.00
Travel to restaurant sites............... Variable
Total Estimated Costs............... $4120.00

<table>
<thead>
<tr>
<th>Culinary Arts CURRICULUM Career Studies Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td><strong>Course #</strong></td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Eng 111</td>
</tr>
<tr>
<td>HRI 154</td>
</tr>
<tr>
<td>HRI 158</td>
</tr>
<tr>
<td>SPD 110</td>
</tr>
<tr>
<td><strong>Semester Total</strong></td>
</tr>
</tbody>
</table>

<p>| <strong>Spring Semester (on site at restaurant)</strong>      |</p>
<table>
<thead>
<tr>
<th><strong>Course #</strong></th>
<th><strong>Course Title</strong></th>
<th><strong>Lecture</strong></th>
<th><strong>Lab</strong></th>
<th><strong>Credits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>HRI 106</td>
<td>Principles of Culinary Arts I</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HRI 107</td>
<td>Principles of Culinary Arts II</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HRI 125</td>
<td>Principles of Commercial Food Preparation</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HRI 134</td>
<td>Food and Beverage Service Management</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Semester Total</strong></td>
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<td><strong>8</strong></td>
<td><strong>12</strong></td>
<td><strong>12</strong></td>
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</table>

<p>| <strong>Third Semester (externship, May through October)</strong> |</p>
<table>
<thead>
<tr>
<th><strong>Course #</strong></th>
<th><strong>Course Title</strong></th>
<th><strong>Lecture</strong></th>
<th><strong>Lab</strong></th>
<th><strong>Credits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>HRI 197</td>
<td>Cooperative Education in Culinary Arts</td>
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<td>5</td>
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<tr>
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<td><strong>0</strong></td>
<td><strong>15</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

**Total Minimum Credits** 29
EMS-INTERMEDIATE Career Studies Certificate

Length: 25 Credits

PURPOSE
The purpose of this curriculum is to produce competent entry-level Emergency Medical Technician-Intermediates (EMT-I/99) who can service the community with advanced life support care via the Emergency Medical Services (EMS) infrastructure. Upon completion of the program, students will be eligible for National Registry testing and certification in the Commonwealth of Virginia. Employment opportunities for EMT-Intermediates are available with ambulance, fire and rescue services, hospitals, local, state and federal government agencies, and humanitarian relief organizations.

PROGRAM GOALS
At the completion of the program the graduate will be able to demonstrate:
• the ability to comprehend, apply, and evaluate the clinical information relative to his role as an entry-level EMT-Intermediate;
• technical proficiency in all skills necessary to fulfill the role of an entry-level EMT-Intermediate; and
• personal behaviors consistent with professional and employer expectations for the entry-level EMT-Intermediate.

ADMISSION REQUIREMENTS
Prior to the starting program courses, the applicant must:
1. meet eligibility requirements as stipulated by the Virginia Office of EMS; and
2. meet the college’s general admission requirements.

ACCREDITATION
This program is accredited by the Commonwealth of Virginia Department of Health, Office of Emergency Medical Services, and Division of Educational Development.

PROGRAM REQUIREMENTS

PHYSICAL REQUIREMENTS

ACADEMIC REQUIREMENTS
Students must make a “C” or better in all program core courses. Any student receiving a grade less than “C” will be placed on programmatic academic probation. That course shall be remediated once, with a written contract drafted containing the requirements of the remediation. Remediated courses must be completed with a final grade of “C” or better. Dismissal from the program shall result if the student does not meet the requirements of the contract.

CLINICAL AND BEHAVIORAL REQUIREMENTS
Selected and supervised student experience is required by the program and will be accomplished at selected, regional health care facilities. The student is responsible for transportation to these facilities, as well as to any scheduled field trips. Program preceptors will observe and evaluate the student’s suitability for the profession. If the student does not exhibit those documented behaviors required of the EMS professional, the student might be asked to withdraw from the program.

EMS-Intermediate Career Studies Certificate CURRICULUM

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 111</td>
<td>Emergency Medical Technician - Basic</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>EMS 120</td>
<td>EMT-Basic Clinical</td>
<td>1</td>
<td>0</td>
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<td></td>
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<td>5</td>
<td>4</td>
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First Semester (Summer)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 151</td>
<td>Intro to Advanced Life Support</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>EMS 170</td>
<td>ALS Internship I</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>EMS 153</td>
<td>Basic ECG Recognition</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>EMS 157</td>
<td>ALS - Trauma Care</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
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Second Semester (Fall)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 155</td>
<td>ALS - Medical Care</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>EMS 159</td>
<td>EMS Special Populations</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>EMS 172</td>
<td>ALS Clinical Internship II</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>EMS 173</td>
<td>ALS Field Internship I</td>
<td>0</td>
<td>3</td>
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<tr>
<td></td>
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</table>

Third Semester (Spring)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Total Minimum Credits</td>
<td></td>
<td></td>
<td>25</td>
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</tbody>
</table>
ENTREPRENEURSHIP Career Studies Certificate

Length: 18 Credits

PURPOSE
To develop skills necessary to initiate and run a small business including writing a business plan, setting up bookkeeping, doing market research, and entering into binding contracts.

OCCUPATIONAL OBJECTIVES
To train persons for careers in business as small business owner, small business manager, small business consultant.

ADMISSION REQUIREMENTS
Applicants must meet the general admission requirements of the college.

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BUS 100</td>
<td>Introduction to Business</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>MKT 100</td>
<td>Principles of Marketing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>BUS 116</td>
<td>Entrepreneurship</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>BUS 165</td>
<td>Small Business Management</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ACC 134</td>
<td>Small Business Taxes</td>
<td>3</td>
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<tr>
<td>BUS 241</td>
<td>Business Law I</td>
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<tr>
<td>Total Minimum Credits</td>
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<td>18</td>
</tr>
</tbody>
</table>

PROGRAM REQUIREMENTS
Students are required to earn a C or better in all courses to be awarded the Career Studies Certificate in Entrepreneurship.

PREREQUISITES
Prior to enrolling in the certificate program students should have completed a computer literacy course which includes Word Processing, Spreadsheets, Databases, Presentation Software, the Internet and Email.

HEATING AND AIR CONDITIONING Career Studies Certificate (HVAC)

Length: 27 Credits

PURPOSE
To train students for entry-level positions requiring skills in installing, troubleshooting, and repairing heating and air conditioning systems in primarily residential applications.

OCCUPATIONAL OBJECTIVE
Heating/Air Conditioning installation and maintenance technician.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR 171</td>
<td>Refrigeration I</td>
<td>4</td>
<td>6</td>
<td>6</td>
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<tr>
<td>AIR 154</td>
<td>Heating Systems I</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 165</td>
<td>Air Conditioning Systems I</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 166</td>
<td>Air Conditioning Systems II</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 235</td>
<td>Heat Pumps</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 134</td>
<td>Circuits and Controls</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 116</td>
<td>Duct Construction and Maintenance</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>AIR 238</td>
<td>Advanced Troubleshooting &amp; Service</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total Minimum Credits</td>
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<td></td>
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<td>27</td>
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</tbody>
</table>

ADMISSIONS REQUIREMENTS
Applicants must meet the general admission requirements of the college.

PROGRAM REQUIREMENTS
Students are required to earn a C or better in all courses to be awarded the Career Studies Certificate, Heating and Air Conditioning.
INDUSTRIAL ELECTRICITY/ELECTRONICS Career Studies Certificate

Length: 22 Credits

PURPOSE
To develop or extend basic skills through a curriculum which provides theory and hands-on training in Industrial Electricity/Electronics.

OCCUPATIONAL OBJECTIVE
Industrial Electricity/Electronics Technician’s Helper, Industrial Engineering Technician’s Helper and Maintenance Electrician’s Helper.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETR 113</td>
<td>AC/DC Fundamentals I</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ELE 120</td>
<td>Electrical/Electronic Survey</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ETR 114</td>
<td>AC/DC Fundamentals II</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ETR 271</td>
<td>Microcomputer Electronics I</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ELE 143</td>
<td>Programmable Controllers I</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>DRF 231</td>
<td>Computer Aided Drafting I</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
<td>Total Minimum Credits</td>
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<td>14</td>
<td>22</td>
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</tbody>
</table>

ADMISSION REQUIREMENTS
Applicants must meet the general admission requirements of the college.

PROGRAM REQUIREMENTS
Students are required to earn a C or better in all courses to be awarded the Industrial Electricity/Electronics Career Studies Certificate. Credits earned through this certificate may be applied towards a one-year certificate or two-year Associate of Applied Science degree.

INSTRUCTIONAL TECHNOLOGY Career Studies Certificate

Length: 25 or 26 Credits

PURPOSE
This program introduces educators to the practical use of personal computers, educational software, and the internet, with emphasis on presentation software and multimedia production. Opportunities for Employment: Secondary or College Teaching (recertification/professional development Teacher Assistants, Technology Resource Teachers

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 115</td>
<td>Intro to Computer Concepts and Applications</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>AST 141</td>
<td>Word Processing I</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ITE 140</td>
<td>Spreadsheet Software</td>
<td>4</td>
<td>0</td>
<td>4</td>
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<tr>
<td>ITE 130</td>
<td>Introduction to Internet Services</td>
<td>3</td>
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<td>3</td>
</tr>
<tr>
<td>AST 260</td>
<td>Presentation Software</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITE 170</td>
<td>Multimedia Software</td>
<td>3</td>
<td>0</td>
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<td>EDU 280</td>
<td>Technology for Teachers</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ITN 107</td>
<td>Personal Computer Hardware and Troubleshooting</td>
<td>4</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>Total Minimum Credits</td>
<td></td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>

ADMISSION REQUIREMENTS
Applicants must meet the general admission requirements of the college.

PROGRAM REQUIREMENTS
Students are required to earn a C or better in all courses to be awarded the Career Studies Certificate, Instructional Technology.
LEADERSHIP IN ORGANIZATIONS Career Studies Certificate

Length: 9 Credits

PURPOSE
This program is intended to develop current and future leaders employed in all organizations, examine the set of attitudes, activities and behaviors that typifies effective leadership and utilizing a three tier/course process, examine leadership theory, skills research and practice for the basic (Tier I), mid-management (Tier II) and senior management (Tier III) levels.

OCCUPATIONAL OBJECTIVE
This is a skills enhancement certificate that is taken by people who wish to either upgrade their skills or to qualify for promotions. It was initially developed by companies for the purpose of employee professional development.

Leadership in Organizations Career Studies Certificate Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 111</td>
<td>Principles of Supervision I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>BUS 117</td>
<td>Human Relations and Leadership Development</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>BUS 201</td>
<td>Organizational Behavior</td>
<td>0</td>
<td>3</td>
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</tr>
<tr>
<td><strong>Total Minimum Credits</strong></td>
<td></td>
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<td><strong>9</strong></td>
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</tbody>
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ADMISSION REQUIREMENTS
Applicants must meet the general admission requirements set forth by the college.

PROGRAM REQUIREMENTS
Students must earn a C or better in all courses to be awarded the Career Studies Certificate, Leadership in Organizations.

MARINE TRADES Career Studies Certificate

Length: 23 Credits

PURPOSE
To train persons for full time employment as marine technicians, service mechanics for boat dealers, service mechanics for marine equipment dealers, service mechanics for marine repair business and marine engineer assistants. Wide-spread use of vessels for pleasure and commerce in this region has created a steady demand for qualified marine technicians as part of the large marine trades industry.

OCCUPATIONAL OBJECTIVES
Marine technicians, marine repair company mechanics, marine engineer assistants, boat dealership technicians, marine equipment dealerships technicians.

Marine Trades Career Studies Certificate CURRICULUM

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MAR 130</td>
<td>Marine Maintenance Mechanics</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MAR 156</td>
<td>Vessel Fitting And Rigging</td>
<td>1</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>MAR 157</td>
<td>Small Outboard Engine Service</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MAR 158</td>
<td>Inboard Engine Service</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MAR 159</td>
<td>Large Outboard Engine Service</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MAR 165</td>
<td>Stern Drive Transmission Service</td>
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<td>3</td>
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<tr>
<td><strong>Total Minimum Credits</strong></td>
<td></td>
<td></td>
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</table>

ADMISSION REQUIREMENTS
Applicants must meet the general admission requirements of the college.

PROGRAM REQUIREMENTS
Students are required to earn a C or better in all courses to be awarded the Marine Trades Career Studies Certificate.
Microcomputer Applications Career Studies Certificate

Length: 17 Credits

Purpose
To develop basic skills in computer literacy and operations of the microcomputer.
The program of study is designed to train and equip students with the essentials skills needed in an automated working environment.

Occupational Objective
To train workers to serve as administrative assistants, data entry equipment operators, data coder operators, and computer operators.

Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 115</td>
<td>Introduction to Computer Concepts and Applications</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<td></td>
<td>Plus a minimum of 14 additional course credits selected from the following:</td>
<td></td>
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</tr>
<tr>
<td>AST 141</td>
<td>Word Processing I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITE 140</td>
<td>Spreadsheet Software</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>ITE 130</td>
<td>Introduction to Internet Services</td>
<td>3</td>
<td>0</td>
<td>3</td>
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<tr>
<td>ITD 110</td>
<td>Web Page Design</td>
<td>3</td>
<td>0</td>
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</tr>
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<td>ITE 150</td>
<td>Desktop Database Software</td>
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<td>0</td>
<td>4</td>
</tr>
<tr>
<td>ITE 215</td>
<td>Advanced Computer Literacy</td>
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<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITE 170</td>
<td>Multimedia Software</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>ITE 270</td>
<td>Advanced Multimedia Software</td>
<td>3</td>
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<tr>
<td></td>
<td>Total Minimum Credits</td>
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</tbody>
</table>

Nurse Aide Career Studies Certificate

Length: 9 Credits

Purpose
To train persons for full time employment as nursing assistants. This short term program is intended to give graduates full proficiency in the skills required to assist with nursing care in nursing homes, hospitals, and supervised home care situations.

Occupational Objectives
Nurse's Aide, Home Health Aide.

Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
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<tr>
<td>NUR 27</td>
<td>Nurse Aide I</td>
<td>2</td>
<td>4</td>
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<tr>
<td>NUR 29</td>
<td>Home Health Aide</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>NUR 31</td>
<td>Advanced Skills for Nurse Aides</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td></td>
<td>Total Minimum Credits</td>
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<td>9</td>
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</tbody>
</table>

Welding: Arc and Gas Career Studies Certificate

Length: 9 Credits

Purpose
To train persons for full-time employment as beginning welders.
This short term course of studies is intended to introduce students to the principles and techniques of basic oxyacetylene welding and cutting, and basic arc welding.

Occupational Objectives
Entry Level Welder; Farm Welder; Marine Welder

Curriculum

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Lab</th>
<th>Credits</th>
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<tr>
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<td>Fundamentals of Welding</td>
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<td>3</td>
<td>3</td>
</tr>
<tr>
<td>WEL 123</td>
<td>Arc Welding I</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>WEL 124</td>
<td>Arc Welding II</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td>9</td>
</tr>
</tbody>
</table>

Admission Requirements
Applicants must meet the general admission requirements of the college.

Program Requirements
Students must earn a C or better in all courses to be awarded the Career Studies Certificate in Welding: Arc and Gas.
COURSE DESCRIPTIONS

General Usage Courses Section 5.3.0.3 of the Virginia Community College System Policy Manual provides for the use of generic-type courses, general usage, that apply to multiple curricula and to all disciplines. The college catalog shall include course information (number, title, credits and description) as listed in the Master Course File. More specific titles, credits and course descriptions may be substituted in published class schedules to clarify topics and content covered in a given semester. General usage courses may be repeated for credit, and may include lecture, laboratory, out-of-class study, or a combination thereof.

90, 190, 290 Coordinated Internship (discipline) (1-5 Cr.)
Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours per week.

93, 193, 293 Studies In (discipline) (1-5 Cr.)
Covers new content not covered in existing courses in the discipline. Allows instructor to explore content and instructional methods to assess the course's viability as a permanent offering. Variable hours per week.

A “Studies in” course is intended as an experimental course to test its viability as a permanent offering. Each offering of the course must be approved by the Chief Academic Officer or designee. An experimental course may be offered twice, after which the course must be approved under the appropriate discipline according to VCCS processes for adding new courses to the Master Course File.

95, 195, 295 Topics In (discipline) (1-5 Cr.)
Provides an opportunity to explore topic areas of an evolving nature or of short-term importance in the discipline. Variable hours per week.

A “Topics in” course is intended to cover topics of an evolving nature or of short term importance in the discipline. The course shall be approved by the academic VP or designee for a period up to two years. The Chief Academic Officer or designee may approve an extension of another two-year period, after which the course must be approved under the appropriate discipline according to VCCS processes for adding new courses to the Master Course File.

96, 196, 296 On-Site Training (discipline) (1-5 Cr.)
Offers opportunities for career orientation and training without pay in selected businesses and industry. Supervised and coordinated by the college. Credit/work ratio not to exceed 1:5 hours. Variable hours per week.


97, 197, 297 Cooperative Education In (discipline) (1-5 Cr.)
Provides on-the-job training for pay in approved business, industrial and service firms. Applies to all career-technical curricula at the discretion of the college. Credit/work ratio not to exceed 1:5 hours. Variable hours per week.

98, 198, 298 Seminar and Project In (discipline) (1-5 Cr.)
Requires 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. Variable hours per week.

99, 199, 299 Supervised Study In (discipline) (1-5 Cr.)
Assigns problems for independent study outside the normal classroom setting under the guidance and direction of an instructor. Incorporates prior experience and instruction in the discipline. Variable hours per week.

Exceptions to the credit limit may be granted by the Chief Academic Officer.

The prerequisites listed in the following course descriptions are the minimum prerequisites allowed by the Virginia Community College System. Rappahannock Community College may require additional or different prerequisites from those listed. Please see your faculty advisor for clarification.
ACCOUNTING (ACC)

ACC 111 Accounting I
Presents fundamental accounting concepts and principles governing the accounting cycle, journals, ledgers, working papers, and preparation of financial statements for sole proprietorships. A laboratory corequisite (ACC 113) may be required as identified by the college. Lecture 3-4 hours per week. (3-4 cr.)

ACC 112 Accounting II
Continues Accounting 111. Presents the analysis of financial statements for sole proprietorships, partnerships and corporations. A laboratory corequisite (ACC 114) may be required as identified by the college. Lecture 3-4 hours per week. (3-4 cr.)

ACC 124 Payroll Accounting
Presents accounting systems and methods used in computing and recording payroll to include payroll taxes and compliance with federal and state legislation. Lecture 2-3 hours per week. (2-3 cr.)

ACC 134 Small Business Taxes
Introduces taxes most frequently encountered in business. Includes payroll, sales, property, and income tax. Lecture 2-3 hours per week. (2-3 cr.)

ACC 211 Principles of Accounting I
Presents accounting principles/application to various businesses. Covers the accounting cycle, income determination, and financial reporting. A laboratory corequisite (ACC 213) may be required as identified by the college. Lecture 3-4 hours per week. (3-4 cr.)

ACC 212 Principles of Accounting II
Emphasizes partnerships, corporations and the study of financial analysis. Includes and introduces cost/managerial accounting concepts. Corequisite (ACC 214) may be required. Prerequisite: ACC 211. Lecture 3-4 hours per week. (3-4 cr.)

ACC 215 Computerized Accounting
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. Corequisite or corequisite ACC 212 or equivalent. Lecture 3 hours per week. (3 cr.)

ADMINISTRATION OF JUSTICE (ADJ)

ADJ 100 Survey of Criminal Justice
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. (3 cr.)

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

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

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

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

ADJ 157 Computer Security
Examines security concerns with access controls, shutdown alternatives, hardware and software protection, and data encryption. Lecture 3 hours per week. (3 cr.)

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

ADJ 211 Criminal Law, Evidence & Procedures I
Teaches the elements of proof for major and common crimes and the legal classification of offenses. Studies the kinds, degrees and admissibility of evidence and its presentation in criminal proceedings with emphasis on legal guidelines for methods and techniques of evidence acquisition. Surveys the procedural requirements from arrest to final disposition in the various American court systems with focus on the Virginia jurisdiction. Lecture 3 hours per week. (3 cr.)

ADJ 225 Courts and the Administration of Justice
Studies court systems with emphasis on the technical procedures required, from incident occurrence to final disposition of the case, noting the applicable principles of civil and criminal law; focuses on Virginia courts, laws, and procedures. Prerequisite ADJ 130 or divisional approval. Lecture 3 hours per week. (3 cr.)

ADJ 227 Constitutional Law for Justice Personnel
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. (3 cr.)

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

AIR CONDITIONING AND REFRIGERATION (AIR)

AIR 116 Duct Construction and Maintenance
Presents duct materials including sheet metal, aluminum, and fiber glass. Explains development of duct systems, layout methods, safety hand tools, cutting and shaping machines, fasteners and fabrication practices. Includes duct fittings, dampers and regulators, diffusers, heater and air washers, fans, insulation, and ventilating hoods. Lecture 1-2 hours. Laboratory 2-3 hours. Total 3-5 hours per week. (2-3 cr.)
AIR 134-135 Circuits and Controls I-II
Introduces basic principles of electricity. Studies the electron and its behavior in passive and active circuits and components. Demonstrates electronic components and circuits as applied to air conditioning system. Lecture 2-3 hours. Laboratory 2-6 hours. Total 4-9 hours per week. (3-4 cr.) (3-4 cr.)

AIR 154-155 Heating Systems I-II
Introduces types of fuels and their characteristics of combustion; types, components and characteristics of burners, and burner efficiency analyzers. Studies forced air heating systems including troubleshooting, preventive maintenance and servicing. Lecture 2-3 hours. Laboratory 2-6 hours. Total 4-8 hours per week. (3-4 cr.) (3-4 cr.)

AIR 165-166 Air Conditioning Systems I-II
Introduces comfort survey, house construction, load calculations, types of distribution systems, and equipment selection. Introduces designing, layout, installing and adjusting of duct systems, job costs, and bidding of job. Lecture 2-3 hours. Laboratory 3-6 hours. Total 5-8 hours per week. (3-4 cr.) (3-4 cr.)

AIR 171-172 Refrigeration I-II
Introduces basic principles of refrigeration. Includes refrigeration systems, cycles, and use and care of refrigeration tools. Studies shop techniques including soldering, brazing, leak testing, tube testing, tube bending, flaring, and swagging. Analyzes mechanical (vapor compression) systems. Assembles and repairs them including evacuating, charring, testing, and electrical repairs. Introduces advanced troubleshooting and repairs for domestic, commercial and industrial units. Includes medium, low, and ultra low temperature systems of the single and multiple unit types. Includes equipment selection, system balancing, and installation procedures. Lecture 4-6 hours. Laboratory 6-9 hours. Total 10-15 hours per week. (6-9 cr.) (6-9 cr.)

AIR 235 Heat Pumps
Studies theory and operation of reverse cycle refrigeration including supplementary heat as applied to heat pump systems, including service, installation and maintenance. Lecture 2-3 hours. Laboratory 2-3 hours. Total 4-6 hours per week. (3-4 cr.)

AIR 238 Advanced Troubleshooting and Service
Presents advanced service techniques on wide variety of equipment used in refrigeration, air conditioning, and phases of heating and ventilation controls. Lecture 2-3 hours. Laboratory 2-3 hours. Total 4-6 hours per week. (3-4 cr.)

AMERICAN SIGN LANGUAGE
(ASL)

ASL 101-102 American Sign Language I-II
Introduces the fundamentals of American Sign Language (ASL) used by the Deaf Community, including basic vocabulary, syntax, finger spelling, and grammatical non-manual signals. Focuses on communicative competence. Develops gestural skills as a foundation for ASL enhancement. Introduces cultural knowledge and increases understanding of the Deaf Community. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 CR)(3-4 CR)

ART (ART)

ART 101-102 History & Appreciation of Art I-II
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. (3 cr.) (3 cr.)

ART 121-122 Drawing I-II
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. Lecture 1-2 hours. Studio instruction 4 hours. Total 5-6 hours per week. (3-4 cr.) (3-4 cr.)

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

ADMINISTRATIVE SUPPORT TECHNOLOGY (AST)

AST 101 Keyboarding I
Teaches the alphabetic keyboard with emphasis on correct techniques, speed, and accuracy. Teaches formatting of basic personal and business correspondence, reports, and tabulation. A laboratory co-requisite (AST 103) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 102 Keyboarding II
Develops keyboarding and document production skills with emphasis on preparation of specialized business documents. Continues skill-building for speed and accuracy. Prerequisite AST 101. A laboratory co-requisite (AST 104) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 107 Editing/Proofreading Skills
Develops skills essential to creating and editing business documents. Covers grammar, spelling, diction, punctuation, capitalization, and other usage problems. Lecture 3 hours per week. (3 cr.)

AST 117 Keyboarding for Computer Usage
Teaches the alphabetic keyboard and 10-key pad. Develops correct keying techniques. Lecture 1 hour per week. (1 cr.)

AST 132 Word Processing I (Specify Software)
Introduces students to a word processing program to create, edit, save and print documents. Lecture 1 hour per week. (1 cr.)

AST 133 Word Processing II (Specify Software)
Presents formatting and editing features of a word processing program. Lecture 1 hour per week. (1 cr.)
AST 141 Word Processing I (Specify Software)
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. Prerequisite AST 101 or equivalent. A laboratory co-requisite (AST 144) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 142 Word Processing II (Specify Software)
Teaches advanced software applications. Prerequisite AST 141 or equivalent. A laboratory co-requisite (AST 145) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 147 Introduction to Presentation Software (Specify Software)
Introduces presentation options including slides, transparencies, and other forms of presentations. Lecture 1-2 hours per week. (1-2 cr.)

AST 150 Desktop Publishing I (Specify Software)
Presents desktop publishing features including page layout and design, font selection, and use of graphic images. Lecture 1 hour per week. (1 cr.)

AST 232 Microcomputer Office Applications
Teaches production of business documents using word processing, databases, and spreadsheets. Emphasizes document production to meet business and industry standards. Prerequisite AST 101 or equivalent. A laboratory co-requisite (AST 233) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 236 Specialized Software Applications
Teaches specialized integrated software applications on the microcomputer. Emphasizes document production to meet business and industry standards. Prerequisite AST 101 or equivalent. A laboratory co-requisite (AST 237) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 238 Word Processing Advanced Operations
Teaches advanced word processing features including working with merge files, macros, and graphics; develops competence in the production of complex documents. A laboratory co-requisite (AST 239) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 243 Office Administration I
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. Prerequisite AST 101. Lecture 3 hours per week. (3 cr.)

AST 253 Advanced Desktop Publishing I
Introduces specific desktop publishing software. Teaches document layout and design, fonts, type styles, style sheets, and graphics. Prerequisite AST 101 or equivalent and experience in using a word processing package. A laboratory co-requisite (AST 255) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AST 260 Presentation Software
Teaches creation of slides including use of text, clip art, and graphs. Includes techniques for enhancing presentations with on-screen slide show as well as printing to transparencies and handouts. Incorporates use of sound and video clips. A laboratory co-requisite (AST 261) may be required. Lecture 2-4 hours per week. (2-4 cr.)

AUT 100 Introduction to Automotive Shop Practices
Introduces shop practices for automotive laboratory and shop safety, identification and use of hand tools, general power equipment and maintenance of automotive shop. Explains basic operation procedures of standard shop equipment. Presents Occupational Safety and Health Act standards pertaining to the automotive field. Lecture 2-3 hours per week. (2-3 cr.)

AST 245 Business Management I
Introduces management, marketing, finance, and risk management. Develops business vocabulary. Lecture 3 hours per week. (3 cr.)

BIO 101-102 General Biology I-II
Examines 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. (4 cr.) (4 cr.)

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

BIO 215 Plant Life of Virginia
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. (3 cr.)

BIO 270 General Ecology
Studies interrelationships between organisms and their natural and cultural environments with emphasis on populations, communities, and ecosystems. Prerequisite BIO 101-102 or divisional approval. Lecture 1-4 hours. Recitation and laboratory 3-6 hours. Total 4-10 hours per week. (2-6 cr.)

BIO 275 Marine Ecology
Applies ecosystem concepts to marine habitats. Includes laboratory and field work. Prerequisite BIO 101-102 or divisional approval. Lecture 3 hour. Recitation and laboratory 3 hours. Total 6 hours per week. (4 cr.)

BUS 100 Introduction to Business
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. (3 cr.)
BUS 111 Principles of Supervision I
Teaches the fundamentals of supervision, including the primary responsibilities of the supervisor. Introduces factors relating to the work of supervisor and subordinates. Covers aspects of leadership, job management, work improvement, training and orientation, performance evaluation, and effective employee/supervisor relationships. Lecture 3 hours per week. (3 cr.)

BUS 116 Entrepreneurship
Presents the various steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations taxes, checkbook records and bank reconciliation, depreciation, overhead, distribution of profit 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. Prerequisite: MTH 120. Lecture 3 hours per week. (3 cr.)

BUS 117 Leadership Development
Covers interpersonal relations in hierarchical structures. Examines the dynamics of teamwork, motivation, handling change and conflict and how to achieve positive results through others. Lecture 3 hours per week. (3 cr.)

BUS 125 Applied Business Mathematics
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 profit 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. Prerequisite: MTH 120. Lecture 3 hours per week. (3 cr.)

BUS 126 Computer Business Applications
Provides a practical application of software packages, including spreadsheets, word processing, database management, and presentation graphics. Includes the use of programs in accounting techniques, word processing, and management science application. Prerequisite: keyboarding competence. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr)

BUS 200 Principles of Management
Teaches management and the management functions of planning, organizing, leading, 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. (3 cr.)

BUS 201 Organizational Behavior
Presents a behavioral oriented course combining the functions of management with the psychology of leading and managing people. Focuses on the effective use of human resources through understanding human motivation and behavior patterns, conflict management and resolution, group functioning and process, the psychology of decision-making, and the importance of recognizing and managing change. Lecture 3 hours per week. (3 cr.)

BUS 205 Human Resource Management
Introduces employment, selection, and placement of personnel, forecasting, job analysis, job descriptions, training methods and programs, employee evaluation systems, compensation, benefits, and labor relations. Lecture 3 hours per week. (3 cr.)

BUS 226 Computer Business Applications
Introduces early childhood development through activities and experiences in nursery, pre-kindergarten, kindergarten, and primary programs. Investigates classroom organization and procedures, and use of classroom time and materials, approaches to education for young children, professionalism, and curricular procedures. Lecture 3 hours per week. (3 cr.)

CHILDHOOD DEVELOPMENT (CHD)

CHD 118 Language Arts for Young Children
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. Surveys children's literature, examines elements of quality story telling and story reading, and stresses the use of audio-visual materials. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

CHD 120 Introduction to Early Childhood Education
Introduces early childhood development through activities and experiences in nursery, pre-kindergarten, kindergarten, and primary programs. Investigates classroom organization and procedures, and use of classroom time and materials, approaches to education for young children, professionalism, and curricular procedures. Lecture 3 hours per week. (3 cr.)

CHD 121-122 Childhood Educational Development I-II
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. (3 cr.) (3 cr.)

CHD 125 Creative Activities for Children
Prepares individuals to work with young children in the arts and other creative age-appropriate activities. Investigates effective classroom experiences and open-ended activities. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)
CHD 165 Obser. and Parti. in Early Ch/
Primary Settings
Observes and participates in early childhood settings such as child care centers, pre-schools, Montessori schools or public schools in Kindergarten through 3rd grade levels. 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. (3 cr.)

CHEMISTRY (CHM)

CHM 01 Chemistry
Presents basic inorganic and organic principles to students with little or no chemistry background. Can be taken in subsequent semesters as necessary until course objectives are completed. Lecture 1-4 hours per week. Laboratory 3 hours per week. Total 1-7 hours per week. (1-5 cr.)

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

CHM 111-112 College Chemistry I-II
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. (4 cr.)

DRAFTING (DRF)

DRF 111-112 Technical Drafting I-II
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 1-2 hours. Laboratory 2-6 hours. Total 3-7 hours per week. (2-3 cr.) (2-3 cr.)

DRF 135 Electrical/Electronics Blueprint Reading
Presents an interpretation of basic shop drawings, conventional symbols, terminology, and principles used by the mechanical draftsman. Explains common electrical and electronic symbols, wiring diagrams, schematic drawing, and application of wiring diagrams. Lecture 2 hours per week. (2 cr.)

DRF 160 Machine Blueprint Reading
Introduces interpreting of various blueprints and working drawings. Applies basic principles and techniques such as visualization of an object, orthographic projection, technical sketching and drafting terminology. Requires outside preparation. Lecture 3 hours per week. (3 cr.)

DRF 231 Computer Aided Drafting I
Teaches computer aided drafting concepts and equipment designed to develop a general understanding of components and operate a typical CAD system. Prerequisite: divisional approval. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

DRF 232 Computer Aided Drafting II
Teaches advanced operation in computer aided drafting. Prerequisite DRF 231. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

ECONOMICS (ECO)

ECO 120 Survey of Economics
Presents a broad overview of economic theory, history, development, and application. Introduces terms, definitions, policies, and philosophies of market economies. Provides some comparison with other economic systems. Includes some degree of exposure to macroeconomic and microeconomic concepts. Lecture 3 hours. (3 cr.)

ECO 201 Principles of Macroeconomics
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. (3 cr)

ECO 202 Principles of Microeconomics
Introduces the basic concepts of microeconomics. Explores the free market concepts with coverage of economic models and graphs, scarcity and choices, supply and demand, elasticity’s, marginal benefits and costs, profits, and production and distribution. Lecture 3 hours per week. (3 cr)

EDUCATION (EDU)

EDU 200 Introduction to Teaching as a Profession
Provides an orientation to the teaching profession in Virginia, including historical perspectives, current issues, and future trends in education on the national and state levels. Emphasizes information about teacher licensure examinations, steps to certification, teacher preparation and induction programs, and attention to critical shortage areas in Virginia. Includes supervised field placement (recommended: 40 clock hours) in a K-12 school. Prerequisite: Successful completion of 24 credits of transfer courses. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

EDU 225 Audiovisual Materials & Computer Software
Prepares students to construct graphic teaching aids, to select and develop materials for instructional support, to operate, maintain and use audiovisual equipment used in the classroom. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

EDU 235 Health, Safety, and Nutrition Education
Focuses on the physical needs of children and explores strategies to meet these needs. Emphasizes positive health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety. Places emphasis on the development of food habits and concerns in food and nutrition. Describes symptoms and reporting procedures for child abuse. Lecture 3 hours per week. (3 cr.)

EDU 280 Technology Standards for Teachers
Provides K-12 classroom teachers with the knowledge and skills needed to fulfill the Commonwealth of Virginia’s Technology Standards for Instructional Personnel. Certification is dependent on the supervisor’s or employer’s approval. Pre-requisite of ITE 115 or instructor approval. Lecture 3 hours per week. (3 cr.)
ELECTRICAL TECHNOLOGY (ELE)

ELE 120 Electrical/Electronic Survey
Presents the study of passive and active components, devices and circuits. Electrical/electronic components and devices are demonstrated as applied to fundamental analog and digital circuits and electronic systems. Lecture 3 hours per week. (3 cr.)

ELE 127 Residential Wiring Methods
Studies wiring methods and standards used for residential dwellings. Provides practical experience in design, layout, construction, and testing of residential wiring systems by use of scaled mock-ups. Lecture 1-2 hour. Laboratory 2-3 hours. Total 4-5 hours per week. (2-3 cr.)

ELE 131-132 National Electrical Code I-II
Provides comprehensive study of the purpose and interpretations of the National Electric Code as well as familiarization and implementation of various charts, code rulings and wiring methods including state and local regulations. Lecture 3-4 hours per week. (3-4 cr.)

ELE 143-144 Programmable Controllers I-II
Studies operating characteristics, programming techniques, interfacing, and networking capabilities of programmable logic controllers. Studies controllers with analog and/or digital interfacing, hand-held and/or software programming. Prerequisites: ETR 156, or equivalent. Lecture 2-3 hours. Laboratory 3 hours. Total 5-6 hours per week. (3 cr.)

ELECTRONICS TECHNOLOGY (ETR)

ETR 101 Electrical/Electronic Calculations I
Teaches calculation methods and fundamental applications and processes to electrical and electronic problems. Stresses basic calculations required in circuit analysis. Includes problem solving utilizing calculators or computers. Lecture 2-3 hours. Laboratory 3 hours. Total 5-6 hours per week. (2-3 cr.)

ETR 113-114 DC & AC Fundamentals I-II
Studies DC and AC circuits, basic electrical components, instruments, network theorems, and techniques used to predict, analyze, and measure electrical quantities. Lecture 2-3 hours. Laboratory 3 hours. Total 5-6 hours per week. (3-4 cr.)

ETR 120 Shop Practices and Safety
Develops basic skills necessary for safe use of shop tools required for chassis layout and fabrication; includes P.C. board artwork, fabrication and repair, and soldering techniques. May include CAD. Lecture 1 hour. Laboratory 3 hours. Total 4 hours per week. (2 cr.)

ETR 175 Engineering and Computer Applications
Teaches applications of technical problems, computer operation, and applications of electrical/electronic problems using mid-to-high level language(s) and operating system. Lecture 2-3 hours. Laboratory 3 hours. Total 5 hours per week. (3-4 cr.)

ETR 198 Cooperation Education in Electronics
Work based learning in electronics or electronics design. Lab 8-12 hours per week. (2-3 cr.)

ETR 203-204 Electronic Devices I-II
Studies active devices and circuits such as diodes, power supplies, transistors (BJTs), amplifiers, and others. Prerequisite: knowledge of DC/AC theory. Lecture 3 hours per week. Laboratory 3 hours per week. (4 cr.)

ETR 211-212 Microcomputer Electronics I-II
Deals with digital circuit devices and systems including number systems, Boolean algebra, logic circuits, arithmetic and logic operations, integrated circuits and digital IC families, D/A and A/D. Includes memory devices, microprocessor architecture, programming and applications in microcomputer based systems. Lecture 3 hours per week. Laboratory 3 hours per week. (4 cr.)

ETR 298 Electronic Design Project
Work based learning in electronics or electronics design. Lab 8-12 hours per week. (2-3 cr.)

Emergency Medical Services (EMS)

EMS 111 Emergency Medical Technician-Basic
Prepares student for certification as a Virginia and National Registry EMT-Basic. Includes all aspects of pre-hospital basic life support as defined by the Virginia Office of Emergency Medical Services curriculum for Emergency Medicine Technician Basic. Prerequisite: CPR certification at the Health Care Provider level. Co-requisite: EMS 120. Lecture 4 hours per week. Laboratory 4 hours per week. Total 8 hours per week. (6 cr.)

EMS 120 Emergency Medical Technician-Basic Clinical
Observes in a program approved clinical/field setting. Includes topics for both EMS 111 and EMS 113 dependent upon the program in which the student is participating and is a co-requisite to both EMS 111 and EMS 113. Lecture 1 hour per week. (1 cr.)

EMS 151 Introduction to Advanced Life Support
Prepares the student for Virginia Enhanced certification eligibility and begins the sequence for National Registry Intermediate and/or Paramedic certification. Includes the theory and application of the following: foundations, human systems, pharmacology, overview of shock, venous access, airway management, patient assessment, respiratory emergencies, allergic reaction, and assessment based management. Conforms at a minimum to the Virginia Office of Emergency Medical Services curriculum. Co-requisite: EMS 170, Clinical and Field Internship. Lecture 3 hours per week. Laboratory 2 hours per week. Total 5 hours per week. (4 cr.)

EMS 153 Basic ECG Recognition
Focuses on the interpretation of basic electrocardiograms (ECG) and their significance. Includes an overview of anatomy and physiology of the cardiovascular system including structure, function and electrical conduction in the heart. Covers advanced concepts that build on the knowledge and skills of basic dysrhythmia determination and introduction to 12 lead ECG. Lecture 2 Hours per week. (2 cr.)
EMS 155 ALS – Medical Care
Continues the Virginia Office of Emergency Medical Services Intermediate and Paramedic curricula. Includes ALS pharmacology, drug and fluid administration with emphasis on patient assessment, differential diagnosis and management of multiple medical complaints. Includes, but are not limited to conditions relating to cardiac, diabetic, neurological, non-traumatic abdominal pain, environmental, behavioral, gynecology, and toxicological disease conditions. Prerequisites: Current EMT-B certification, EMS 151 and EMS 153. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week. (4 cr.)

EMS 157 ALS – Trauma Care
Continues the Virginia Office of Emergency Medical Services Intermediate and Paramedic curricula. Utilizes techniques which will allow the student to utilize the assessment findings to formulate a field impression and implement the treatment plan for the trauma patient. Prerequisites: Current EMT-B certification and 151. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

EMS 159 ALS – Special Populations
Continues the Virginia Office of Emergency Medical Services Intermediate and Paramedic curricula. Focuses on the assessment and management of specialty patients including obstetrical, neonates, pediatric, and geriatrics. Prerequisites: EMS 151 and EMS 153. Pre or Co-requisite EMS 155. Lecture 1 hour per week. Laboratory 2 hours per week. Total 3 hours per week.4 (2 cr.)

EMS 170 ALS Internship I
Begins the first in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in and out of hospitals. Includes but not limited to patient care units such as the Emergency Department, Critical Care units, Pediatric, Labor and Delivery, Operating Room and Trauma Centers. Co-requisite: EMS 151. Laboratory 3-6 hours per week. (1-2 cr.)

EMS 173 ALS Field Internship II
Continues with the second in a series of field experiences providing supervised direct patient care in out-of-hospital advanced life support units. Laboratory 3 hours per week. (1 cr.)

ENGINEERING (EGR)

EGR 120 Introduction to Engineering
Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer and operating systems. Includes engineering problem solving techniques using computer software. Lecture 0-2 hours. Laboratory 0-3 hours. Total 1-4 hours per week. (1-2 cr.)

EGR 135 Statics for Engineering Technology
Introduces Newton's Laws, resultants and equilibrium of force systems, analysis of trusses and frames. Teaches determination of centroids, distributed loads and moments of inertia. Covers dry friction and force systems in space. Lecture 3 hours per week. (3 cr.)

ENGLISH (ENG)

ENG 01 Preparing for College Writing I
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. (1-6 cr.)

ENG 03 Preparing for College Writing II
Emphasizes strategies within the writing process to help students with specific writing situations. Develops techniques to improve clarity of writing and raise proficiency to the level necessary for entrance into particular curricula. Variable hours per week. (1-6 cr.)

ENG 04 Reading Improvement I
Helps students improve their reading process to increase their understanding of reading materials. Includes word forms and meanings, comprehension techniques, and ways to control reading pace. Variable hours per week. (1-6 cr.)

ENG 05 Reading Improvement II
Helps students read critically and increase appreciation of reading. Guides students in making inferences, drawing conclusions, detecting relationships between generalizations and supporting details. Includes interpreting graphic aids and basic library skills. Variable hours per week. (1-6 cr.)

ENG 07 Writing & Reading Improvement I
Provides an integrated approach to developing students' assignments successfully by providing them with reading and writing strategies. Variable hours per week. (3-12 cr.)

ENG 08 Writing & Reading Improvement II
Emphasizes strategies within the writing and critical reading processes to help students with specific writing and reading assignments. Encourages an appreciation for clear writing and practical reading applications. Variable hours per week. (6-12 cr.)

ENG 09 Individualized Instruction in Writing
Focuses on individual writing needs as determined by student and instructor. Provides support for students simultaneously enrolled in other courses or who want additional writing instruction in a tutorial setting. Variable hours per week. (1-3 cr.)

ENG 101-102 Practical Writing I-II
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. Prerequisite for ENG 102: ENG 101 or ENG 111. Lecture 3 hours per week. (3 cr.)

ENG 105 Communication in Business & Industry
Develops ability to communicate effectively in business and industry, emphasizing gathering, organizing, and transmitting information. Primarily for non-curricular, on-site use in business and industry. Variable hours per week. (1-6 cr.)
ENG 111 College Composition I
Introduces students to critical thinking and the fundamentals of academic writing. Through the writing process, students refine topics: develop and support ideas; investigate, evaluate, and incorporate appropriate resources; edit for effective style and usage; and determine appropriate approaches for a variety of contexts, audiences, and purposes. Writing activities will include exposition and argumentation with at least one researched essay. Lecture 3 hours per week. (3 cr.)

ENG 112 College Composition II
Continues to develop college writing with increased emphasis on critical essays, argumentation, and research, developing these competencies through the examination of a range of texts about the human experience. Requires students to locate, evaluate, integrate, and document sources and effectively edit for style and usage. Students must successfully complete ENG 111 or its equivalent, and must be able to use word processing software. Lecture 3 hours per week. (3 cr.)

ENG 115 Technical Writing
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. (3 cr.)

ENG 131 Technical Report Writing I
Offers a review of organizational skills including paragraph writing and basic forms of technical communications, various forms of business correspondence, and basic procedures for research writing. Includes instruction and practice in oral communication skills. Lecture 3 hours per week. (3 cr.)

ENG 198 Seminar in Literary Magazine
Designed to provide practical experience in the production of The Collage, a literary magazine. Students learn the principles of layout, illustration, and copy editing. A major emphasis is on the selection of quality material for publication and on developing editorial criteria. Students are expected to promote the magazine to their fellow students—both to solicit submissions and to create interest among potential readers. Lecture one hour per week. (1 cr.)

ENG 199 Seminar in Student Newspaper
Functions as a course and as a student activity. Students produce The Gull, RCC’s student newspaper, three times a semester. Students plan the issue, write the articles, take the pictures, and decide on layout. Knowledge of WordPerfect or Microsoft Word is preferred. Prerequisite/co-requisite ENG 111/101 or instructor approval. Lecture one hour per week. (1 cr.)

ENG 210 Advanced Composition
Helps students refine skills in writing non-fiction prose. Guides development of individual voice and style. Introduces procedures for publication. Prerequisite ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.)

ENG 241-242 Survey of American Literature I-II
Examines American literary works from colonial times to the present, emphasizing the ideas and characteristics of our national literature. Involves critical reading and writing. Prerequisite ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.) (3 cr.)

ENG 243-244 Survey of English Literature I-II
Studies major English works from the Anglo-Saxon period to the present, emphasizing the ideas and characteristics of the British literary tradition. Involves critical reading and writing. Prerequisite ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.) (3 cr.)

ENG 251-252 Survey of World Literature I-II
Examines major works of world literature. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.) (3 cr.)

ENG 257 Mythology
Studies selected mythologies of the world, emphasizing their common origins and subsequent influence on human thought and expression. Involves critical reading and writing. Prerequisite ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.)

ENG 276 Southern Literature
Examines the themes and techniques of selected writers dealing with the American South as a distinctive cultural entity. Involves critical reading and writing. Prerequisite ENG 112 or divisional approval. Lecture 3 hours per week. (3 cr.)

FIN 110 Principles of Banking
Presents nearly every aspect of banking, providing a comprehensive introduction to the diversified services and operations of the banking industry. Focuses on new trends gaining attention in banking circles. Recommended for all banking students. (AIB Approved). Lecture 3 hours per week. (3 cr.)

FIN 125 Law and Banking: Principles
Presents a banker’s guide to law and legal issues with special emphasis on the Uniform Commercial Code. Includes summaries of law pertaining to contracts, real estate, and bankruptcy. Highlights legal implications of consumer lending, sources and applications of banking law, torts and crimes, real and personal property, and a complete glossary of legal terminology related to banking. (AIB Approved). Lecture 3 hours per week. (3 cr.)

FIN 195 Topics: Ethics for Bankers
Will cover those topics required by the AIB concerning ethics for bankers. Lecture 1 hour per week. (1 cr.)

FIN 240 Money and Banking
Introduces the concept of money supply and the role of banks as money creators and as participants in the nation’s payments mechanism. The course explores the working of fiscal and monetary policy, the functions and powers of the Federal Reserve system, and various monetary theories. Also highlighted are major trends and issues in banking and international banking. (AIB Approved). Lecture 3 hours per week. (3 cr.)

FIN 256 Marketing For Bankers
Focuses on understanding the basic concepts necessary to successfully market bank products and services. Develops an understanding of the functions of public relations, advertising, sales promotion, selling, and distribution. Highlights customer motivation and buying behavior, the marketing management process and marketing and the wholesale side of banking. (AIB Approved). Lecture 3 hours per week. (3 cr.)
FRENCH (FRE)

FRE 101-102 Beginning French I-II
Introduces understanding, speaking, reading, and writing skills and emphasizes basic French sentence structure. Lecture 4 hours per week. May include one additional hour of oral practice per week. (4-5 cr.)

FRE 201-202 Intermediate French I-II
Continues to develop understanding, speaking, reading, and writing skills. French is used in the classroom. Prerequisite French 102 or equivalent. Lecture 3-4 hours per week. May include one additional hour of oral practice per week. (3-4 cr.)

GEOGRAPHY (GEO)

GEO 200 Introduction to Physical Geography
Studies major elements of the natural environment including earth sun relationship, land forms, weather and climate, natural vegetation and soils. Introduces the student to types and uses of maps. Lecture 3 hours per week. (3 cr.)

GEO 210 People and the Land: Intro to Cultural Geography
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. (3 cr.)

GEOLOGY (GOL)

GOL 105 Physical Geology
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. (4 cr.)

HEALTH (HLT)

HLT 106 First Aid & Safety
Focuses on the principles and techniques of safety and first aid. Lecture 2 hours per week. (2 cr.)

HLT 110 Concepts of Personal & Community Health
Studies the concepts related to the maintenance of health, safety, and the prevention of illness at the personal and community level. Lecture 2-3 hours per week. (2-3 cr.)

HLT 116 Introduction to Personal Wellness Concepts
Introduces students to the dimensions of wellness including the physical, emotional, environmental, spiritual, occupational, and social components. Lecture 2-3 hours per week. (2-3 cr)

HLT 121 Introduction to Drug Use & Abuse
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. (3 cr.)

HLT 135 Child Health and Nutrition
Focuses on the physical needs of the preschool child and the methods by which these are met. Emphasizes health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety as related to health growth and development. Lecture 3 hours per week. (3 cr.)

HLT 141 Introduction to Medical Terminology
Focuses on medical terminology for students preparing for careers in the health professions. Lecture 1-2 hours per week. (1-2 cr.)

HLT 143 Medical Terminology
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, word stems, and technical terms with emphasis on proper spelling, pronunciation, and usage. Emphasizes more complex skills and techniques in understanding medical terminology. Lecture 3 hours per week. (3 cr.)

HLT 160 Personal Health and Fitness
Studies the relationships between health and fitness. Topics include nutrition, disease prevention, weight control, smoking and health, medical care, aerobic and anaerobic conditioning, and the relationship between physical and mental health. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr.)

HLT 200 Human Sexuality
Provides a basic understanding of human sexuality. Includes anatomy, physiology, pregnancy, family planning, venereal diseases, and sexual variations. Lecture 3 hours per week. (3 cr.)

HLT 215 Personal Stress & Stress Management
Provides a basic understanding of stress and its physical, psychological, and social effects. Includes the relationships between stress and change, self-evaluation, sources of stress, and current coping skills for handling stress. Lecture 2-3 hours per week. (2-3 cr.)

HLT 230 Principles of Nutrition & Human Development
Teaches the relationship between nutrition and human development. Emphasizes nutrients, balanced diet, weight control, and the nutritional needs of an individual. Lecture 3 hours per week. (3 cr.)

HISTORY (HIS)

HIS 101-102 History of Western Civilization I-II
Examines the development of western civilization from ancient times to the present. Lecture 3 hours per week. (3 cr.) (3 cr.)

HIS 111-112 History of World Civilization I-II
Surveys Asian, African, Latin American, and European civilizations from the ancient period to the present. Lecture 3 hours per week. (3 cr.) (3 cr.)

HIS 121-122 United States History I-II
Surveys United States history from its beginning to the present. Lecture 3 hours per week. (3 cr.) (3 cr.)

HIS 141-142 African-American History I-II
Surveys the history of black Americans from their African origins to the present. Lecture 3 hours per week. (3 cr.) (3 cr.)

HIS 155 Life in Colonial Virginia
Studies life in Virginia before the American Revolution, including politics, economics, customs, culture, and the slave plantation system. Lecture 3 hours per week. (3 cr.)
HRI 106-107 Principles of Culinary Arts I-II
Introduces the fundamental principles of food preparation and basic culinary procedures. Stresses the use of proper culinary procedures combined with food science, proper sanitation, standards of quality for food items that are made, and proper use and care of kitchen equipment. Lecture 2-3 hours. Laboratory 0-3 hours. Total 3-5 hours per week. (3 cr) (3 cr)

HRI 115 Food Service Managers Sanitation Certification
Provides an accelerated survey of principles and applications of sanitary food service, designed to promote the skills of managers in food service establishments licensed by the Commonwealth of Virginia. (Upon successful completion of the course, a certificate of achievement is awarded by the Educational Foundation of the National Restaurant Association and the student’s name is entered in the Foundation Registry.) Lecture 1 hour per week. (1 cr)

HRI 120 Principles of Food Preparation
Applies scientific principles and techniques to the preparation of food, including carbohydrates, such as fruits, vegetables, sugars and starches; fats, including both animal and vegetable, as well as natural and manufactured; and proteins, such as milk, cheese, eggs, meats, legumes, fish and shellfish. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr)

HRI 134 Food and Beverage Service Management
Provides a conceptual and technical framework for managing the service of meals in a variety of commercial settings. Studies the integration of production and service delivery, guest contact dynamics, reservations management and point-of-sale systems. Lecture 2-3 hours. Laboratory 0-3 hours. Total 3-5 hours per week. (3 cr)

HRI 140 Fundamentals of Quality for the Hospitality Industry
Teaches quality in the hospitality industry, including material on the total quality management movement. Emphasizes quality from the customer’s perspective. Lecture 3 hours per week. (3 cr)

HRI 154 Principles of Hospitality Management
Presents basic understanding of the hospitality industry by tracing the industry’s growth and development, reviewing the organization and management of lodging, food, and beverage operations, and focusing on industry opportunities and future trends. Lecture 3 hours per week. (3 cr)

HRI 158 Sanitation & Safety
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 food-borne illnesses in conformity with federal, state and local guidelines. Focuses on OSHA standards in assuring safe working conditions. Lecture 3 hours per week. (3 cr)

HRI 197 Cooperative Education in Culinary Arts
Work based learning experience in cooking and food preparation. Lab 15 hours per week. (5 cr)

HRI 255 Human Resources Management & Training for Hospitality & Tourism
Prepares the students for interviewing, training and developing employees. Covers management skills (technical, human, and conceptual) and leadership. Covers the establishment and use of effective training and evaluative tools to improve productivity. Emphasizes staff and customer relations. Lecture 3 hours per week. (3 cr)

HRI 297 Cooperative Education in Culinary Arts
Work based learning experience in cooking and food preparation. Lab 15 hours per week. (5 cr)

HUMANITIES (HUM)

HUM 201 Survey of Western Culture I
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. (3 cr)

HUM 202 Survey of Western Culture II
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. (3 cr)

INDUSTRIAL ENGINEERING TECHNOLOGY (IND)

IND 108 Technical Computer Applications
 Develops data entry proficiency for technical application and word processing as applied to technology. Presents an introduction to computer operating systems as related to technical applications. Includes demonstrations of selected technical topics such as CAD, CNC, Graphic illustration I/O’s involving PLC’s, telecommunications (modems), and process control. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr)

IND 125 Installation & Preventive Maintenance
Studies practices in the installation of machinery, including mounting, grouting, leveling, and alignment. Examines methods of preventive maintenance including inspection, scheduled maintenance, controls, record keeping, repair parts stocking, and safety considerations. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week. (3 cr)
**IND 140 Quality Control**

Studies history, structure, and organization of the quality control unit. May include incoming material control, product and process control, and cost control. Lecture 2 hours per week. (2 cr.)

**INFORMATION TECHNOLOGY DATABASE PROCESSING (ITD)**

**ITD 110 Web Page Design**

Stresses a working knowledge of web site designs, construction, and management using HTML or XHTML. Includes headings, lists, links, images, image maps, tables, forms, and frames. Prerequisite: Recommended ITE 115. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITD 112 Designing Web Page Graphics**

Explores the creation of digital graphics for web design. Includes basic design elements such as color and layout will be explored utilizing a computer graphics program(s). Prerequisite: Recommended ITD 110. (3-4 cr.)

**ITD 210 Web Page Design II**

Incorporates advanced techniques in web site planning, design, usability, accessibility, advanced site management, and maintenance utilizing web editor software(s). Prerequisite: Recommended ITD 110. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITD 212 Interactive Web Design**

Provides techniques in interactive design concepts to create cross-platform, low-bandwidth animations utilizing a vector based application. Emphasizes the importance of usability, accessibility, optimization and performance. Prerequisite: Recommended ITD 110. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**INFORMATION TECHNOLOGY ESSENTIALS (ITE)**

**ITE 100 Introduction to Information Systems**

Covers the fundamentals of computers and computing and topics which include impact of computers on society, ethical issues, and terminology. Provides discussion about available hardware and software as well as their application. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 115 Introduction to Computer Applications and Concepts**

Covers computer concepts and internet skills, and uses a software suite which includes word processing, spreadsheet, database, and presentation software to demonstrate skills. Recommended prerequisite keyboarding skills. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 127 Microcomputer Software: Beginning Windows**

Imparts first-time users with sufficient information to make practical use of the Windows software package. Presents the basics of the features and applications included in the Windows operating system package. Lecture 1-2 hours per week. (1-2 cr.)

**ITE 130 Introduction to Internet Services**

Provides students with a working knowledge of Internet terminology and services including e-mail, WWW browsing, search engines, ftp, file compression, and other services using a variety of software packages. Provides instruction for basic web page construction. Lecture 3-4 ours. Lab 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 140 Spreadsheet Software**

Covers the use of spreadsheet software to create spreadsheets with formatted cells and cell ranges, control pages, multiple sheets, charts, and macros. Topics include type and edit text in a cell, enter data on multiple worksheets, work with formulas and functions, create charts, pivot tables, and styles, insert headers and footers, and filter data. Covers MOS Excel objectives. Lecture 3-4 hours. Lab 0-2 hours. Total 3-5 hours per week. Lecture 1-2 hours per week. (3-4 cr.)

**ITE 150 Desktop Database Software**

Incorporates instruction in planning, defining, and using a database; performing queries; producing reports; working with multiple files; and concepts of database programming. Includes database concepts, principles of table design and table relationships, entering data, creating and using forms, using data from different sources, filtering, creating mailing labels. Covers MOS Access certification objectives. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 160 Introduction to e-Commerce**

Studies the culture and demographics of the Internet, on-line business strategies and the hardware and software tools necessary for Internet commerce. Includes the identification of appropriate target segments, the development of product opportunities, pricing structures, distribution channels over the Internet, and the execution of marketing strategy in computer-mediated environments. Presents case histories of successful Web applications. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 170 Multimedia Software**

Explores technical fundamentals of creating multimedia projects with related hardware and software. Students will learn to manage resources required for multimedia production and evaluation and techniques for selection of graphics and multimedia software. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITE 215 Advanced Computer Applications and Integration**

Incorporates advanced computer concepts including the integration of a software suite. Prerequisite: ITE 115 Introduction to Computer Applications and Concepts. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**INFORMATION TECHNOLOGY NETWORKING (ITN)**

**ITN 101 Introduction to Network Concepts**

Provides instruction in networking media, physical and logical topologies, common networking standards and popular networking protocols. Emphasizes the TCP/IP protocol suite and related IP addressing schemes, including CIDR. Includes selected topics in network implementation, support and LAN/WAN connectivity. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

**ITN 106 Microcomputer Operating Systems**

Teaches use of operating system utilities and multiple-level directory structures, creation of batch files, and configuration of microcomputer environments. May include a study of graphical user interfaces. Maps to A+ Software. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)
ITP 107 Personal Computer Hardware and Troubleshooting
Includes specially designed instruction to give a student a basic knowledge of hardware and software configurations. Includes the installation of various peripheral devices as well as basic system hardware components. Maps to A+ Hardware Certification. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 110 Windows 2000 Professional
Introduces an overview of instruction in installation, configuration, administration, and troubleshooting of Windows 2000 Professional as a desktop operating system in a networked data communications environment. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 171 Unix 1
Provides an introduction to UNIX operating systems. Teaches login procedures, file creation, UNIX file structure, input/output control, and the UNIX shell. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

INFORMATION TECHNOLOGY PROGRAMMING (ITP)

ITP 120 Java Programming I
Entails instruction in fundamentals of object-oriented programming using Java. Emphasizes program construction, algorithm development, coding, debugging, and documentation of console and graphical user interface applications. Prerequisite: Recommended ITP 100 or ITP 102. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 130 C Programming I
Stresses instruction in fundamentals of structured programming using C. Emphasizes program construction, algorithm development, coding, debugging, and documentation of console applications. Prerequisite: Recommended ITP 100 or ITP 102. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 132 C++ Programming I
Centers instruction in fundamentals of object-oriented programming and design using C++. Emphasizes program construction, algorithm development, coding, debugging, and documentation of C++ applications. Prerequisite: Recommended ITP 100 or ITP 102. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 136 C# Programming I
Presents instruction in fundamentals of object-oriented programming and design using C#. Emphasizes program construction, algorithm development, coding, debugging, and documentation of applications within the .NET framework. Prerequisite: Recommended ITP 100 or ITP 102. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 154 Basic Programming I
Involves instruction in development of structured programs using BASIC from problems or specifications. Prerequisite: Recommended ITP 100 or equivalent. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

ITP 232 C++ Programming II
Presents in-depth instruction of advanced object-oriented techniques for data structures using C++. Prerequisite: Recommended ITP 132. Lecture 3-4 hours. Laboratory 0-2 hours. Total 3-5 hours per week. (3-4 cr.)

MAR 156 Vessel Fitting and Rigging
Includes instruction and practical student participation in the fitting out and rigging of a vessel for use. May include such subjects as outboard boats and motors, steering controls, instruments, trailers, stability and trim, lighting, accessory mounting, and safety equipment. Lecture 1 hour. Laboratory 9 hours. Total 10 hours per week. (4 cr.)

MAR 157 Small Outboard Engine Service
Focuses on the construction, theory of operation, maintenance and repair of small outboard motors. Includes modern diagnostic and test procedures, trouble shooting and repair followed by actual test tank operation. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week. (4 cr.)

MAR 159 Large Outboard Engine Service
Focuses on the construction, theory of operation, maintenance and repair of larger outboard motors. Includes conventional D.C. battery charging systems and alternator theory, operation and maintenance, conventional and capacitive discharge ignition system, hydraulic system, modern diagnostic and test procedures, trouble shooting and repair followed by actual test tank operation. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week. (4 cr.)
MAR 165 Stern Drive Transmission Service
Teaches the fundamentals of stern drive marine propulsion units versus conventional shaft and propeller configurations. Stresses differences in shafting, bearings, lubrication, and steering. Includes proper methods of operation and maintenance; also minor and major repair operations to include complete disassembly, inspection and trouble-shooting and repair. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr.)

MECHANICAL ENGINEERING TECHNOLOGY (MEC)

MEC 112 Processes of Industry
Analyzes the processes of manufacturing products from materials for industry/engineering. Includes machining, casting, forming molding, hot/cold working, chipless machining, and welding. Addresses quality assurance and inspection procedures. Lecture 3 hours per week. (3 cr.)

MEC 119 Introduction to Basic CNC & CAM
Teaches the basic concepts of Computer Numerical Control (CNC) programming of Numerical Control Machinery with emphasis on Computer Aided Manufacturing (CAM)/Computer Aided Drafting (CAD). Program writing procedures will be based on the following: basic G-code programming language for CNC machinery, CAD/CAM programming systems to produce correct code for CNC Machinery, basic computer usage, CAD/CAM integration, and Code-to-machine transfer via Distributive Numerical Control (DNC). Lecture 1-2 hours. Laboratory 2-4 hours. Total 3-6 hours per week. (2-3 cr.)

MEC 120 Principles of Machine Technology
Studies fundamental machine operations and practices, including layout, measuring devices, hand tools, drilling, reaming, turning between centers, cutting tapers and threads, and milling; fabrication of mechanical parts on drill press, lathe and mill. Lecture 2 hours. Laboratory 0-3 hours. Total 2-5 hours per week. (2-3 cr.)

MEC 161 Basic Fluid Mechanics Hydraulics/Pneumatics
Introduces theory, operation and maintenance of hydraulic/pneumatics devices and systems. Emphasizes the properties of fluids, fluid flow, fluid statics, and the application of Bernoulli's equation. Lecture 2-3 hours. Laboratory 2-3 hours. Total 4-6 hours per week. (3-4 cr.)

MEC 195 Industrial Plumbing & Pipe Fitting
Introduces components and fittings of industrial piping systems. Methods of installation, layout and fabrication are included. Lecture 1 hour. Laboratory 1 hour. Total 2 hours per week. (2 cr.)

MARKETING (MKT)

MKT 100 Principles of Marketing
Presents principles, methods, and problems involved in marketing to consumers and organizational buyers. Discusses problems and policies connected with distribution and sale of products, pricing, promotion, and buyer motivation. Examines variations of marketing research, legal, social, ethical, e-commerce, and international considerations in marketing. Lecture 3 hours per week. (3 cr.)

MKT 282 Principles of e-Commerce
Studies on-line business strategies, and the hardware and software tools necessary for Internet commerce. Includes the identification of appropriate target segments, the development of product opportunities, pricing structures, distribution channels and execution of marketing strategies. Lecture 3 hours per week. (3 cr.)

MATHEMATICS (MTH)

MTH 02 Arithmetic
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 toward graduation. Variable hours per week. (1-5 cr.)

MTH 03 Algebra I
Covers the topics of Algebra I, including real numbers, equations and inequalities, exponents, polynomials, Cartesian coordinate system, rational expressions, and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable toward graduation. Prerequisites: a placement recommendation for MTH 03 and Arithmetic or equivalent. Variable hours per week. (1-5 cr.)

MTH 04 Algebra II
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: a placement recommendation for MTH 04 and Algebra I or equivalent. Variable hours per week. (1-5 cr.)

MTH 06 Developmental Geometry
Covers topics in Euclidean geometry including similarity and congruency, plane and solid figures, right triangles, parallel and perpendicular lines, constructions, and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits not applicable toward graduation. Prerequisites: a placement recommendation for MTH 06 and Algebra I or equivalent. Variable hours per week. (1-5 cr.)

MTH 115-116 Technical Mathematics I-II
Presents algebra through exponential and logarithmic functions, trigonometry, vectors, analytic geometry, and complex numbers. Prerequisites: a placement recommendation for MTH 115 and Algebra I and Geometry, or Algebra I and Algebra 11, or equivalent. Lecture 3 hours per week. (3 cr.)

MTH 120 Introduction to Mathematics
Introduces number systems, logic, basic algebra, and descriptive statistics. Prerequisites: a placement recommendation for MTH 120 and one unit of high school mathematics or equivalent. (Intended for occupational/technical programs.) Lecture 3 hours per week. (3 cr.)
MTH 126 Mathematics for Allied Health
Presents scientific notation, precision and accuracy, decimals and percents, ratio and proportion, variation, simple equations, techniques of graphing, use of charts and tables, logarithms, and the metric system. Prerequisites: a placement recommendation for MTH 126 and one unit of high school mathematics or equivalent. Lecture 2-3 hours per week. (2-3 cr)

MTH 150 Topics in Geometry
Presents the fundamentals of plane and solid geometry and introduces non-Euclidean geometries and current topics. Prerequisites: a placement recommendation for MTH 150 and Algebra I, Algebra II and Geometry or equivalent. Lecture 3 hours per week. (3 cr)

MTH 151 Mathematics for the Liberal Arts I
Presents topics in sets, logic, numeration systems, geometric systems, and elementary computer concepts. Prerequisites: a placement recommendation for MTH 151 and Algebra I, Algebra II and Geometry or equivalent. Lecture 3 hours per week. (3 cr)

MTH 152 Mathematics for the Liberal Arts II
Presents topics in functions, combinatorics, probability, statistics and algebraic systems. Prerequisites: a placement recommendation for MTH 152 and Algebra I, Algebra II and Geometry or equivalent. Lecture 3 hours per week. (3 cr)

MTH 158 College Algebra
Covers the structure of complex number systems, polynomials, rational expressions, graphing, systems of equations and inequalities and functions, quadratic and rational equations and inequalities. Prerequisites: a placement recommendation for MTH 158 and Algebra I, Algebra II and Geometry or equivalent. Lecture 3 hours per week. (3 cr)

MTH 163 Precalculus I
Presents college algebra, matrices, and algebraic, exponential, and logarithmic functions. Prerequisites: a placement recommendation for MTH 163 and Algebra I, Algebra II, and Geometry or equivalent. Lecture 3 hours per week. (3 cr)

MTH 164 Precalculus II
Presents trigonometry, analytic geometry, and sequences and series. Prerequisite: MTH 163 or equivalent. Lecture 3 hours per week. (3 cr)

MTH 165 Precalculus III
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 165 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 167 Precalculus with Analytic Geometry
Presents trigonometry, analytic geometry, and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 167 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 170 Applied Calculus
Introduces limits, continuity, differentiation and integration of algebraic and transcendental functions, techniques of integration, and partial differentiation. Prerequisite: MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 270 and MTH 271.) Lecture 3 hours per week. (3 cr)

MTH 171 Calculus with Analytic Geometry I
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 171 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 172 Calculus with Analytic Geometry II
Continues the study of analytic geometry and the calculus of algebraic and transcendental functions including rectangular, polar, and parametric graphing, indefinite and definite integrals, methods of integration, and power series along with applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: MTH 173 or equivalent. (Credit will not be awarded for more than one of MTH 174, MTH 176 or MTH 274.) Lecture 5 hours per week. (5 cr)

MTH 173 Calculus with Analytic Geometry I
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 173 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 174 Calculus with Analytic Geometry II
Continues the study of analytic geometry and the calculus of algebraic and transcendental functions including rectangular, polar, and parametric graphing, indefinite and definite integrals, methods of integration, and power series along with applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: MTH 173 or equivalent. (Credit will not be awarded for more than one of MTH 174, MTH 176 or MTH 274.) Lecture 5 hours per week. (5 cr)

MTH 175 Precalculus with Analytic Geometry
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 175 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 176 Precalculus with Analytic Geometry
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical, and engineering science programs. Prerequisites: a placement recommendation for MTH 176 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 170, or MTH 273.) Lecture 5 hours per week. (5 cr)

MTH 240 Statistics
Presents an overview of statistics, including descriptive statistics, elementary probability, probability distributions, estimation, hypothesis testing, and correlation and regression. Prerequisites: a placement recommendation for MTH 240 and MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 240 and MTH 241.) Lecture 3 hours per week. (3 cr)

MTH 241 Statistics I
Covers descriptive statistics, elementary probability, probability distributions, estimation, and hypothesis testing. Prerequisites: a placement recommendation for MTH 241 and MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 240 and MTH 241.) Lecture 3 hours per week. (3 cr)

MTH 242 Statistics II
Continues the study of estimation and hypothesis testing with emphasis on correlation and regression, analysis of variance, chi-square tests, and non-parametric methods. Prerequisite: MTH 241 or equivalent. Lecture 3 hours per week. (3 cr)

MTH 243 Statistics III
Covers the study of estimation and hypothesis testing with emphasis on correlation and regression, analysis of variance, chi-square tests, and non-parametric methods. Prerequisite: MTH 242 or equivalent. Lecture 3 hours per week. (3 cr)

MTH 244 Statistics IV
Covers the study of estimation and hypothesis testing with emphasis on correlation and regression, analysis of variance, chi-square tests, and non-parametric methods. Prerequisite: MTH 243 or equivalent. Lecture 3 hours per week. (3 cr)

MTH 250 College Geometry
Presents topics in Euclidean and non-Euclidean geometries chosen to prepare individuals for teaching geometry at the high school level. Studies Euclid’s geometry and its limitations, axiomatic systems, techniques of proof, and Hilbert’s geometry, including the parallel postulates for Euclidean, hyperbolic, and elliptic geometries. Prerequisite: a placement recommendation for MTH 250 and MTH 174 or equivalent. Lecture 3 hours per week. (3 cr)

MTH 255 Linear Algebra
Covers matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension, eigen values, and eigen vectors. Designed for mathematical, physical and engineering science programs. Prerequisite: MTH 174 or equivalent. Lecture 3 hours per week. (3 cr)

MUSIC (MUS)

MUS 121-122 Music Appreciation I-II
Increases the variety and depth of the student’s interest, knowledge, and involvement in music and related cultural activities. Acquaints the student with traditional and twentieth century music literature, emphasizing the relationship music has as an art form with man and society. Increases the student’s awareness of the composers and performers of all eras through listening and concert experiences. Lecture 3 hours per week. (3 cr) (3 cr)

NATURAL SCIENCE (NAS)

NAS 161-162 Health Science I-II
Presents an integrated approach to human anatomy and physiology, microbiology, and pathology. Includes chemistry and physics as related to health sciences. Prerequisite: admission to the RN program or permission of instructor. Lecture 3 hours per week. Recitation and laboratory 3 hours per week. Total 6 hours per week. (4 cr) (4 cr)
**NURSING (NUR)**

**NUR 27 Nurse Aide I**
Teaches care of older patients with emphasis on the social, emotional, and spiritual needs. Covers 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. May include laboratory or clinical hours.
Lecture 2-4 hours. Laboratory 3-9 hours. Total 6-11 hours per week. (2-3 cr.)

**NUR 29 Home Health Aide**
Emphasizes caring for older patients; includes social, emotional and spiritual needs; procedures; communication; charting; reporting; infection control; safety; anatomy and physiology; nutrition; personal care; death and dying. Provides clinicals in nursing home/patient’s residence. Lecture 1-2 hours. Laboratory 3 hours. Total 4-5 hours per week. (2-3 cr.)

**NUR 31 Advanced Skills for Nurse Aides**
Teaches advanced level skills for Certified Nurse Aides. Lecture 1-2 hours. Laboratory 3-6 hours. Total 4-7 hours per week. (2-3 cr.)

**NUR 111 Nursing I**
Introduces nursing principles including concepts of health and wellness and the nursing process. Develops nursing skills to meet the bio-psychosocial needs of individuals across the lifespan. Includes math computational skills, basic computer instruction related to the delivery of nursing care, communication skills, introduction to nursing, health, the health care system, legal aspects of nursing care, diagnostic testing, assessment, teaching and learning, asepsis, body mechanics and safety, personal care, activity/REST, wound care, nutrition, elimination, oxygenation, fluid and electrolytes, pain control, medication administration, aging populations and pre/post operative care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture 1-7 hours. Laboratory 2-21 hours. Total 9-22 hours per week. (7-8 cr.)

**NUR 112 Nursing II**
Focuses on the nursing care of adults experiencing changes along the health/illness continuum that are common, well-defined, and have predictable outcomes. Includes math computational skills, basic computer instruction related to the delivery of nursing care; acid-base balance, gastrointestinal, genitourinary, musculoskeletal, immunology, oncology, sensor-neural, infectious diseases, endocrine, respiratory and blood disorders and care of the dying client. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. (7-8 cr.)

**NUR 115 LPN Transition**
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 relate 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. (2-7 cr.)

**NUR 120 Nursing Terminology & Charting**
Focuses on basic terminology used in nursing. Emphasizes combining word forms and application to nursing situations and the patient’s record. Lecture 1-2 hours per week. (1-2 cr.)

**NUR 122 Nursing Fundamentals II**
Utilizes the nursing process to meet the bio-psychosocial 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 1-9 hours. Laboratory 2-27 hours. Total 11-28 hours per week. (9-10 cr.)

**NUR 135 Drug Dosage Calculations**
Focuses on apothecary, metric, household conversion in medication dosage calculation for adult and pediatric clients. Provides a practical approach to learning to calculate and prepare medications and solutions. Includes calculating intravenous flow rates. Lecture 1-2 hours per week. (1-2 cr.)

**NUR 204 Mental Health Nursing**
Focuses on the use of nursing process to provide care to individuals/families with acute and chronic mental health needs. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in cooperating agencies. Lecture 1-5 hours. Laboratory 3-15 hours. Total 7-16 hours per week. (5-6 cr.)

**NUR 206 Maternity/Women’s Health Nursing**
Focuses on the use of nursing process to provide care to mothers, infants, and families in the antepartal, intrapartal, and postpartal periods. May also include care of women with gynecological conditions. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in cooperating agencies. Lecture 1-5 hours. Laboratory 2-15 hours. Total 7-16 hours per week. (5-6 cr.)

**NUR 207 Pediatric Nursing**
Focuses on the use of nursing process to provide care to children/families with acute and chronic problems or to prevent such problems. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in cooperating agencies. Lecture 1-5 hours. Laboratory 2-15 hours. Total 7-16 hours per week. (5-6 cr.)

**NUR 208 Acute Medical-Surgical Nursing**
Focuses on the use of nursing process to provide care to individuals/families with acute medical or surgical problems or to prevent such problems. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in cooperating agencies. Lecture 1-5 hours. Laboratory 2-15 hours. Total 7-16 hours per week. (5-6 cr.)

**NUR 226 Health Assessment**
Introduces the systematic approach to obtaining a health history and performing a physical assessment. Lecture 0-2 hours. Laboratory 2-9 hours. Total 3-9 hours per week. (2-3 cr.)

**NUR 230 Pharmacology**
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. (3 cr.)
NUR 254 Dimensions of Professional Nursing
Explores the role of the professional nurse. Emphasizes nursing organizations, legal and ethical implications, and addresses trends in management and organizational skills. Explores group dynamics, relationships, conflicts, and leadership styles. Lecture 1-2 hour per week. (1-2 cr.)

PHYSICAL EDUCATION AND RECREATION (PED)

PED 101-102 Fundamentals of Physical Activity
Presents principles underlying the components of physical fitness. Utilizes conditioning activities involving cardiovascular strength and endurance, respiratory efficiency, muscular strength, and flexibility. May include fitness assessment, nutrition and weight control information, and concepts of wellness. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.)

PED 103-104 Aerobic Fitness I-II
Develops cardiovascular fitness through activities designed to elevate and sustain heart rates appropriate to age and physical condition. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 111-112 Weight Training I-II
Focuses on muscular strength and endurance training through individualized workout programs. Teaches appropriate use of weight training equipment. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 123-124 Tennis I-II
Teaches tennis skills with emphasis on stroke development and strategies for individual and team play. Includes rules, scoring, terminology, and etiquette. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 133-134 Golf I-II
Teaches basic skills of golf, rules, etiquette, scoring, terminology, equipment selection and use, and strategy. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 135-136 Bowling I-II
Teaches basic bowling skills and techniques, scoring, rules, etiquette, and terminology. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 154 Volleyball
Introduces skills, techniques, strategies, rules, and scoring. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.)

PED 156 Softball
Emphasizes skills, techniques, strategies, rules. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.)

PED 174 Shooting & Firearm Safety
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. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 176 Camping
Introduces camping techniques; equipment, site selection and use; safety procedures; and camping ecology. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 177 Basic Canoeing
Introduces basic canoeing techniques, selection and care of equipment, terminology, safety procedures, and navigating currents. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 178 Whitewater Canoeing
Introduces whitewater canoeing techniques, selection and care of equipment, terminology, safety procedures and rescues, and reading and navigating whitewater. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 183 Outdoor Adventures
Introduces outdoor adventure activities with emphasis on basic skills, preparation, personal and group safety, equipment selection and use, ecology, and field experience. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 187 Backpacking
Focuses on the preparation for backpacking trips, equipment and clothing selection, personal and group safety, ecology and physical conditioning. Includes field experience. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PED 189 Saltwater Fishing
Teaches saltwater fishing techniques including casting and trolling, rig making, live bait catching, and use of artificial and live bait. Presents selection and care of equipment, fish habits, conservation, and safety. Lecture 1-2 hours. Lab 0-2 hours. Total 1-3 hours per week. (1-2 cr.) (1-2 cr.)

PHILOSOPHY (PHI)

PHI 101-102 Introduction to Philosophy I-II
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. (3 cr.) (3 cr.)

PHYSICS (PHY)

PHY 111-112 Technical Physics I-II
Emphasizes technical applications. Includes precision measurement statistics, dynamics, energy and momentum, heat, sound, optics, DC and AC electricity, and modern physics. Prerequisites one year of high school algebra or equivalent. (A concurrent course in college algebra and trigonometry is recommended.) Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr.) (4 cr.)

PHY 201-202 General College Physics I-II
Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism, and selected topics in modern physics. Prerequisite MTH 163 or equivalent. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr.) (4 cr.)

PHY 241-242 University Physics I-II
Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear physics. Prerequisite for PHY 241-MTH 173 or MTH 273 or divisional approval. Prerequisite for PHY 242-MTH 174 or MTH 274 or divisional approval. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr.) (4 cr.)
POLITICAL SCIENCE (PLS)

PLS 211-212 U.S. Government I-II
Teaches structure, operation, and process of national, state, and local governments. Includes in-depth study of the three branches of the government and of public policy. Lecture 3 hours per week. (3 cr.) (3 cr.)

PLS 241 International Relations I
Teaches geographic, demographic, economic, ideological, and other factors conditioning the policies of countries and discusses conflicts and their adjustment. Lecture 3 hours per week. (3 cr.)

PLS 242 International Relations II
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. (3 cr.)

PRACTICAL NURSING (PNE)

PNE 145 Trends in Practical Nursing
Studies the role of the Licensed Practical Nurse; legal aspects, organizations, and opportunities in practical nursing. Designed to assist the student in preparation for employment. Lecture 1 hour per week. (1 cr.)

PNE 155 Body Structure and Function
Studies the structure and function of the body. Lecture 3-4 hours per week. (3-4 cr.)

PNE 161-162-163 Nursing in Health Changes
Focuses on nursing situations and procedures necessary to assist individuals in meeting special needs related to human functions. Prerequisite: Must be in the LPN Program. Lecture 3-6-4 hours. Laboratory 9-15-12 hours. 12-21-16 hours per week. (6 cr.) (11 cr.) (8 cr.)

PNE 173 Pharmacology I
Studies history, classification, sources, effects, uses and legalities of drugs. Teaches problem solving skills used in determining doses of drugs. Emphasizes major drug classes and specific agents within each class. Lecture 1-2 hour per week. (1-2 cr.)

PSYCHOLOGY (PSY)

PSY 200 Principles of Psychology
Surveys the basic concepts of psychology. Covers the scientific study of behavior, behavioral research methods and analysis, and theoretical interpretations. Includes topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology. Lecture 3 hours per week. (3 cr.)

PSY 215 Abnormal Psychology
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. Prerequisite: PSY 200 or equivalent. Lecture 3 hours per week. (3 cr.)

PSY 225 Theories of Personality
Studies the major personality theories and their applications. Includes psychodynamic, behavioral, cognitive, and humanistic perspectives. Prerequisite PSY 200, 201 or 202. Lecture 3 hours per week. (3 cr.)

PSY 230 Developmental Psychology
Studies the development of the individual from conception to death. Follows a lifespan perspective on the development of the person’s physical, cognitive, and psychosocial growth. Lecture 3 hours per week. (3 cr.)

REAL ESTATE (REa)

REA 100 Principles of Real Estate
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, fair housing, and management of real estate. Lecture 4 hours per week. (4 cr.)

RELIGION (REL)

REL 200 Survey of the Old Testament
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. (3 cr.)

SIGN COMMUNICATIONS (SCM) Has been replaced with AMERICAN SIGN LANGUAGE (ASL)

SCIENCE TECHNOLOGY (SCT)

SCT 111-112 Introduction to Environmental and Science Technology I- II
Introduces the basic sciences which describe our physical environment. Includes the fundamentals of geology, meteorology, physics, chemistry, and biology. Describes basic scientific principles and relates them to natural phenomena and the activities of man. Emphasizes field experiences including techniques and data gathering. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week. (4 cr.) (4 cr.)

SOCIOLOGY (SOC)

SOC 200 Principles of Sociology
Introduces fundamentals of social life. Presents significant research and theory in areas such as culture, social structure, socialization, deviance, social stratification, and social institutions. Lecture 3 hours per week. (3 cr.)

SOC 215 Sociology of the Family
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. (3 cr.)

SOC 225 Gender and Sex Roles
Analyzes influence of major social institutions and socialization in shaping and changing sex roles in contemporary society. Examines differential access to positions of public power and authority for men and women. Lecture 3 hours per week. (3 cr.)
SOC 235 Juvenile Delinquency
Studies demographic trends, casual theories, and control of juvenile delinquency. Presents juveniles’ interaction with family, schools, police, courts, treatment programs, and facilities. Also approved for ADJ Juvenile curriculum. Lecture 3 hours per week. (3 cr.)

SOC 236 Criminology
Studies research and causal theories of criminal behavior. Examines crime statistics, crime victims, and types of criminal offenses. Introduces role of police, judicial and correctional system in treatment and punishment of offenders. Is also approved for ADJ Criminology. Lecture 3 hours per week. (3 cr.)

SOC 245 Sociology of Aging
Introduces study of aging with special emphasis on later stages of the life cycle. Includes theories of aging, historical and comparative settings, social policy, and future trends of aging. Lecture 3 hours per week. (3 cr.)

SOC 268 Social Problems
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. (3 cr.)

SPANISH (SPA)

SPA 101-102 Beginning Spanish
Introduces understanding, speaking, reading, and writing skills and emphasizes basic Spanish sentence structure. May include an additional hour of oral drill and practice per week. Lecture 4-5 hours per week. (4-5 cr.)

SPA 201-202 Intermediate Spanish
Continues to develop understanding, speaking, reading, and writing skills. Prerequisite SPA 102 or equivalent. May include oral drill and practice. Lecture 3-4 hours per week. (3-4 cr.)

SPA 203-204 Intermediate Spanish I-II
Continues to develop understanding, speaking, reading, and writing skills. Classes conducted in Spanish. Prerequisite SPA 102 or equivalent. May include oral drill and practice. Lecture 3-4 hours per week. (3-4 cr.)

SPEECH AND DRAMA (SPD)

SPD 100 Principles of Public Speaking
Applies theory and principles of public address with emphasis on preparation and delivery. Lecture 3 hours per week. (3 cr.)

SPD 110 Introduction to Speech Communication
Examines the elements affecting speech communication at the individual, small group, and public communication levels with emphasis on practice of communication at each level. Lecture 3 hours per week. (3 cr.)

SPD 126 Interpersonal Communication
Teaches interpersonal communication skills for both daily living and the world of work. Includes perception, self-concept, self-disclosure, listening and feedback, nonverbal communication, attitudes, assertiveness and other interpersonal skills. Lecture 3 hours per week. (3 cr.)

SPD 131 Acting I
Develops personal resources and explores performance skills through such activities as theatre games, role playing, improvisation, work on basic script units, and performance of scenes. Lecture 2 hours. Laboratory 3 hour. Total 5 hours per week. (3 cr.)

SPD 136 Theatre Workshop
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. (1-6 cr.)

STUDENT DEVELOPMENT (SDV)

SDV 100 College Success Skills
Assists students in transition to colleges. 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. (1 cr.)

SDV 101 Orientation to (Specify the Discipline)
Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling, and advising; listening, test taking, and study skills; and topical areas which are applicable to their particular discipline. Lecture 1-3 hours per week. (1-3 cr.)

SDV 106 Preparation for Employment
Provides experience in resume writing, preparation of applications, letters of application, and successfully preparing for and completing the job interview. Assists students in identifying their marketable skills and aptitudes. Develops strategies for successful employment search. Assists students in understanding effective human relations techniques and communication skills in job search. Lecture 1-2 hours per week. (1-2 cr.)

SDV 107 Career Education
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. Lecture 1-3 hours per week. (1-3 cr.)

SDV 108 College Survival Skills
Provides an orientation to the college. Introduces study skills, career and life planning. Offers an opportunity to engage in activities aimed at self-discovery. Emphasizes development of “coping skills” such as listening, interpersonal relations, competence, and improved self-concept. Recommended for students enrolled in developmental courses. Lecture 1-3 hours per week. (1-3 cr.)

WEL 100 Fundamentals of Welding
Introduces arc and oxyfuel welding and cutting. Provides fundamental principles of joining ferrous and non-ferrous metals, welding and cutting processes, equipment operation, and safety procedures with emphasis upon welding and cutting procedures. Lecture 2 hours. Laboratory 3-6 hours. Total 5-8 hours per week. (3 cr.)
WEL 123 Shielded Metal Arc Welding
Basic
Teaches operation of AC transformers and DC motor generator arc welding sets, welding polarities, heats and electrodes for use in joining various metal alloys by the arc welding process. Deals with running beads, butt, and fillet welds in all positions. Emphasizes safety procedures. Lecture 2 hours. Lab 3-6 hours. Total 5-8 hours per week. (3-4 cr.)

WEL 124 Shielded Metal Arc Welding
Advanced
Continues instruction on operation of AC and DC power sources, welding polarities, heats and electrodes for use in joining various metal alloys by the arc welding process. Deals with running beads, butt and fillet welds in all positions. Emphasizes safety procedures. Lecture 2 hours. Laboratory 3-5 hours. Total 5-8 hours per week. (3-4 cr)