

# Career Studies Certificate Programs (pp. 45–57)

**Award:** Certificate in Career Studies

**Length:** Variable (9-29 hours) depending upon the identified need. Normally, program options are equivalent to approximately two semesters of full-time community college work. These programs are designed for part-time students.

**Purpose:** The career studies certificate program is a response to the non-traditional short-term program educational needs of many adults in the College's service area and is designed on a series of specialized program options. These options represent a wide variety of adult career and academic interest course areas. Each of the program options is a distinct "mini-curriculum" within a broader range of adult educational possibilities. Options within the program are intended to represent the minimum college course work considered representative of these fields of study.

**Admission Requirements:** Admission to the career studies certificate program is based upon the general requirements for admission to the College. Deficiencies in general education may require developmental studies. The student is expected to select one of the program options during admission and enrollment.

**Program Requirements:** The Career Studies Certificate curriculum includes selected specialized courses within each program option. The range of course credit varies between program options from 9 to 29 semester hours. Upon satisfactory completion of one of the program options, students receive the Career Studies Certificate. Students may earn more than one certificate as program option requirements are satisfied.

**Program Conditions:** Career Studies Program options will be 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 are available on or off campus; (3) qualified instructors are available, and (4) adequate financial resources are available.

## CSC Program Options:

- American Sign Language
- Apprenticeship
- Artisan - Glass Works
- Artisan - Pottery Works
- Business Management
- Call Center Operations
- Child Development
- Computer Aided Drafting
- Computer Numerical Control
- Cosmetology Theory
- Customer Service
- Designing and Installing Network Systems
- Emergency Medical Technician - Basic
- Emergency Medical Technician - Intermediate
- Entrepreneurship in Small Business
- General Clerical
- Heating, Ventilation, and Air Conditioning
- Horticulture
- Industrial Maintenance
- Industrial Training-Mechanical Maintenance
- Industrial Training-Precision Instrumentation
- Industrial Training-Technician I
- Industrial Training-Technician II
- Industrial Training-Technician III
- Information Processing
- Medical Coding
- Medical Transcription
- Nursing Preparation
- Optician Theory
- Pharmacy Technology
- Photography
- Plumbing
- Professional Communications for Business, Industry, and Government
- Purchasing
- Quality Control
- Teacher Aide
- Water and Wastewater Management
- Welding

## American Sign Language

This career studies certificate program introduces American Sign Language (ASL). Students work toward proficiency in ASL and learn methods for using this language to interpret for the hearing impaired. Occupational opportunities include working as an interpreter in the public schools and/or private practice. The program is designed for part-time students who take classes at night. Students must attain the grade of "C" or better in each ASL course before enrolling in more advanced ASL courses.

Course No.	Course Title	Course Credits
ASL 101	American Sign Language I	3
ASL 102	American Sign Language II	3
ASL 201	American Sign Language III	3
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in American Sign Language—9.

## Apprenticeship

This career studies certificate program is designed for apprentices who are currently employed or those who are in the process of completing an apprenticeship program. This program will enhance their technical skills for the workplace and provide a possible opportunity for advancement. This is a generic program that can be adapted to most apprenticeship trades.

Course No.	Course Title	Course Credits
SDV 100	Orientation	1
ITE 102	Computers and Information Systems	2
ENG 111	College Composition I	3
MTH 103	Applied Technical Mathematics I	3
PSY 120	Human Relations	3
MAC 197	Cooperative Education*	4
	Approved Electives*	8
	TOTAL	24

Total Minimum Credits for a Career Studies Certificate in Apprenticeship—24.

\*Note: Other course prefixes may be substituted to align with actual work experience (i.e. ELE, ETR, AIR, BLD, WEL etc). MAC 197 is for introductory OJT and MAC 297 is for the student who has previous experience in this area and will be capable of a more advanced work process. Work process will be developed around the competencies for selected apprenticeship trade.

## Artisan - Glass Works

This career studies certificate program is designed to assist those students who wish to supplement their abilities and skills in a crafts area contains a specific focus on a particular craft with an eye towards its application in the business community.

Course No.	Course Title	1st Sem.	2nd Sem.
ART 195	Glasswork - Basic Lead	3	-
ART 195	Glasswork - Basic Copper Foil	3	-
ART 195	Glasswork - 3-D Foils	-	3
ART 195	Glasswork - Lampworking	-	3
ART 195	Drawing for Crafts	3	-
ART 195	Fused Glass	3	-
	Approved Electives <sup>(1)</sup>	-	3
	TOTAL	12	9

Total Minimum Credits for a Career Studies Certificate in Artisan - Glass Works—21.

<sup>(1)</sup> Approved electives include ACC 105, BUS 121, BUS 165 or MKT 228.

## Artisan - Pottery Works

This career studies certificate program is designed to assist those students who wish to supplement their abilities and skills in a crafts area contains a specific focus on a particular craft with an eye towards its application in the business community.

Course No.	Course Title	1st Sem.	2nd Sem.
ART 153	Ceramics I	3	-
ART 154	Ceramics II	3	-
ART 235	Functional Ceramics	-	3
ART 236	Sculptural Ceramics	-	3
ART 237	Decorative Ceramics	-	3
ART 195	Drawing for Crafts	3	-
	Approved Electives <sup>(1)</sup>	3	-
	TOTAL	12	9

Total Minimum Credits for a Career Studies Certificate in Artisan - Pottery Works—21.

<sup>(1)</sup> Approved electives include ACC 105, BUS 121, BUS 165 or MKT 228.

### Business Management

This career studies certificate program is designed to assist those persons presently employed in a supervisory capacity in increasing their technical skills. Also it will afford those persons who are interested in a supervisory position an opportunity to prepare themselves for such a position.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
BUS 100	Introduction to Business	3	-
ENG 111	College Composition I	3	-
SDV 100	Orientation	1	-
BUS 111	Principles of Supervision	-	3
<i>One of the following computer courses:</i>			
BUS 226	Computer Business Applications		3
ITE 115	Introduction to Computer Applications and Concepts		
ENG 116	Writing for Business <sup>(1)</sup>	-	3
TOTAL		7	9

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
ECO 120	Survey of Economics	3	-
	Social Science Elective <sup>(2)</sup>	3	-
BUS 204	Project Management	-	3
BUS 205	Human Resource Management	-	3
TOTAL		6	6

Total Minimum Credits for a Career Studies Certificate in Business Management—28.

<sup>(1)</sup> ENG 112 may be substituted for ENG 116.  
<sup>(2)</sup> For a listing of approved courses, see Social Science Electives located on page 39.

### Call Center Operations

This career studies certificate program is designed for individuals seeking entry-level positions in a call center.

Course No.	Course Title	Course Credits
AST 171	Introduction to Call Center Services	3
BUS 100	Introduction to Business	3
MKT 110	Principles of Selling	3
MKT 195	Fundamentals of Customer Service	3
TOTAL		12

Total Minimum Credits for a Career Studies Certificate in Call Center Operations—12.

### Child Development

This career studies certificate program is designed to meet the needs of students who want to prepare for a career in the child care field and for those already working in a child care facility and want to improve their skills and knowledge. The program offers both theoretical knowledge related to how children develop and practical knowledge about how to meet their developmental needs.

Course No.	Course Title	Course Credits
CHD 120	Introduction to Early Childhood Education	3
CHD 125	Creative Activities for Children	3
CHD 205	Guiding the Behavior of Children	3
HLT 135	Child Health and Nutrition	3
TOTAL		12

Total Minimum Credits for a Career Studies Certificate in Child Development—12.



### Computer Aided Drafting

This career studies certificate program is offered to meet the needs of two populations: (1)employed professionals requiring instruction in state-of-the-art CAD, (2)entering students intending to pursue the Engineering Technology curriculum, but who need foundation work in mathematics. A placement test demonstrating proficiency in Arithmetic or divisional approval is required for admission. Developmental mathematics course work prescribed by placement test scores should be completed while enrolled in this program.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
DRF 201-202	Computer Aided Drafting and Design I-II <sup>(1)</sup>	6	-
DRF 112	Technical Drafting II <sup>(2)</sup>	-	3
IND 113	Materials & Processing in Manufacturing	-	2
ARC 212	Architectural Drafting III	-	3
	TOTAL	6	8

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
DRF 241	Parametric Solid Modeling I	3	-
ARC 233	Advanced Architectural Drafting I	3	-
DRF 262	CAD-Civil Design & Hydrology	-	3
DRF 212	Advanced Technical Drafting II <sup>(1)</sup>	-	3
DRF 280	Design Capstone Project	-	3
	TOTAL	6	9

Total Minimum Credits for a Career Studies Certificate in Computer Aided Drafting—29.

<sup>(1)</sup> Students with credit by previous completion or experience for DRF 201 should enroll in ARC 212.  
<sup>(2)</sup> After receiving a minimum grade of "C" in DRF 112, the student should petition for credit for DRF 201.

### Computer Numerical Control

This career studies certificate program is designed to provide computer numerical control programming and operational skills for the experienced machinist in industry.

Course No.	Course Title	Course Credits
MAC 121	Numerical Control I	3
MAC 122	Numerical Control II	3
MAC 123	Numerical Control III	3
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in Computer Numerical Control—9.

### Cosmetology Theory

This career studies certificate is designed to prepare students in cosmetology/barber theory and to satisfy apprenticeship related instructional requirements. The student needs to complete 3,000 hours of shop apprenticeship training to be eligible to take the Virginia Cosmetology/Barber State Board Examination leading to licensure as a cosmetologist/barber in the state of Virginia. Occupational objectives are to become a licensed hairdresser/barber with the option of being employed in beauty salons/barber shops or self-employed shop owners. This program is approved by the Virginia Cosmetology/Barber Board and the Virginia Department of Labor and Industry. Interested students are requested to contact the Apprenticeship Office.

Course No.	Course Title	Course Credits
COS 81	Cosmetology Theory I	4
COS 82	Cosmetology Theory II	5
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in Cosmetology Theory—9.

### Customer Service

This career studies certificate program is designed to provide a broad background in fundamental skills, business knowledge, and customer-focused studies. This certificate will provide beneficial academic preparations for individuals seeking entry-level positions in banking, insurance, telemarketing and retail sales. Current employees in positions that require customer contact will receive instruction designed to assist them in career advancement. Students will enhance their knowledge of fundamental concepts required for success in modern business cultures. The majority of courses in this certificate program are acceptable for credit in the A.A.S. Management and Marketing curricula.

Course No.	Course Title	Course Credits
AST 107	Editing/Proofreading Skills	3
BUS 121	Business Mathematics I	3
	<i>One of the following computer courses:</i>	3
BUS 226	Computer Business Applications	
ITE 115	Introduction to Computer Applications and Concepts	
ENG 111	College Composition I	3
MKT 100	Principles of Marketing	3
MKT 195	Fundamentals of Customer Service	3
	<i>Two of the following:</i>	6
ACC 105	Office Accounting	
BUS 236	Communication in Management	
ISR 130	Principles of Insurance	
MKT 110	Principles of Selling	
PSY 120	Human Relations	
	TOTAL	24

Total Minimum Credits for a Career Studies Certificate in Customer Service—24.

### Designing and Installing Network Systems

This career studies certificate program is designed to provide entry level skills for an individual to enter the networking field as a networking associate. The management courses will aid the student in working in a "teamwork" environment to design, install, and maintain small networking systems within an organization, industry, or civic group. The telecommunications management courses will also cover the skills necessary to challenge the Cisco Certified Network Associate (CCNA) Exam. This program can be completed in one or more academic years.

Course No.	Course Title	Course Credits
BUS 100	Introduction to Business	3
BUS 200	Principles of Management	3
<i>One of the following computer courses:</i>		3
BUS 226	Computer Business Applications	
ITE 115	Introduction to Computer Applications and Concepts	
MTH 120	Introduction to Mathematics	3
ITN 154	Networking Fundamentals - Cisco	4
ITN 155	Introductory Routing - Cisco	4
ITN 156	Basic Switching & Routing - Cisco	4
ITN 157	WAN Technologies - Cisco	4
TOTAL		28

Total Minimum Credits for a Career Studies Certificate in Designing and Installing Network Systems—28.

### Emergency Medical Technician-Basic

This career studies certificate program is designed for persons who wish to become emergency medical technicians. An internship will be required at a local hospital or rescue squad. Classes will be offered in the evening to accommodate those individuals who are employed full-time. This program is being offered in coordination with the Blue Ridge Emergency Medical Services.

Course No.	Course Title	Course Credits
EMS 111	Emergency Medical Technician-Basic	6
EMS 100	CPR for Healthcare Providers <sup>(1)</sup>	1
EMS 120	Emergency Medical Technician Basic Clinical	1
HLT 141	Introduction to Medical Terminology	2
TOTAL		10

Total Minimum Credits for a Career Studies Certificate in Emergency Medical Technician - Basic—10.

<sup>(1)</sup> Current CPR certification by the American Heart Association as a healthcare provider or American Red Cross Professional may be substituted for EMS 100.

### Emergency Medical Technician-Intermediate

This career studies certificate program is designed to produce competent entry-level EMT Intermediates who can service the community with advanced life support care via the EMS infrastructure. Upon completion of the program, students will be eligible for National Registry testing and certification in Virginia. Employment opportunities for EMT-I's are available with Ambulance, Fire and Rescue Services, Hospitals, Government Departments, Sales and Humanitarian relief organizations.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
EMS 151	Introduction to Advanced Life Support <sup>(1)</sup>	4	-
EMS 170	ALS Internship I	2	-
EMS 153	Basic ECG Recognition	2	-
EMS 157	ALS-Trauma Care	3	-
EMS 155	ALS-Medical Care	-	4
EMS 159	ALS-Special Populations	-	4
EMS 172	ALS Clinical Internship II	-	1
EMS 173	ALS Field Internship I	-	3
TOTAL		11	10

Total Minimum Credits for a Career Studies Certificate in Emergency Medical Technician - Intermediate—21.

<sup>(1)</sup> EMS 151 must be taken prior to taking courses in the second semester. Exceptions to be approved by program director.

### Entrepreneurship in Small Business

This career studies certificate program is designed for persons who wish to acquire the knowledge and skills necessary to organize and manage a small business. This program may be completed in two semesters.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
BUS 121	Business Mathematics I	3	-
BUS 165	Small Business Management	3	-
MKT 228	Promotion	3	-
ACC 105	Office Accounting	-	3
ACC 195	QuickBooks	-	1
BUS 160	Legal Aspects of Small Business Operations	-	1
	Elective <sup>(1)</sup>	-	3
TOTAL		9	8

Total Minimum Credits for a Career Studies Certificate in Entrepreneurship in Small Business—17.

<sup>(1)</sup> This elective may be satisfied by taking one of the following: MKT 110, MKT 282, AST 205, BUS 205, or by Previous Occupational Experience. See the Dean of Business & Allied Health for approval of previous occupational completion.

**General Clerical**

This career studies certificate program is designed to prepare qualified clerical workers for full-time positions. Proficiency in high school English and mathematics is required. The General Clerical program qualifies graduates for full-time employment after one academic year of study.

Course No.	Course Title	Course Credits
BUS 226	Computer Business Applications	3
AST 101-102	Keyboarding I-II <sup>(1)</sup>	6
AST 107	Editing/Proofreading Skills	3
AST 141	Word Processing I	3
AST 230	Introduction to Office Technology	3
BUS 121	Business Mathematics I	3
ENG 111	College Composition I	3
	<b>TOTAL</b>	<b>24</b>

Total Minimum Credits for a Career Studies Certificate in General Clerical—24.

<sup>(1)</sup> Students who have completed prior training in keyboarding may enroll in AST 102. After receiving a minimum grade of "C" in AST 102, the student will automatically receive credit for AST 101.

**Heating, Ventilation, and Air Conditioning**

This career studies certificate program is offered primarily in the evening and may be completed in a two-year period. The curriculum offers a series of HVAC courses which prepare individuals with entry level skills. Students interested in the HVAC program are strongly advised to consult with their advisor while planning a program of study and to continue doing so on a regular basis during this program of study.

Course No.	Course Title	Course Credits
AIR 121	Air Conditioning and Refrigeration I	3
AIR 134, 135	Circuits and Controls I, II	8
AIR 154, 155	Heating Systems I, II	6
AIR 158	Mechanical Codes	2
AIR 165	Air Conditioning Systems I	4
AIR 205	Hydronics and Zoning	3
AIR 235	Heat Pumps	3
	<b>TOTAL</b>	<b>29</b>

Total Minimum Credits for a Career Studies Certificate in Heating, Ventilation, and Air Conditioning—29.

**Horticulture**

This career studies certificate program is designed to prepare students for entry-level positions in nurseries, garden centers, landscape operations or upgrade knowledge and skills for those already employed in one of these careers. Graduates find jobs in greenhouse businesses, golf course operations, landscaping and landscape maintenance businesses and horticultural sales.

Course No.	Course Title	Course Credits
HRT 108	Plant Identification	2
HRT 110	Principles of Horticulture	3
HRT 111	Landscape Horticulture	3
HRT 205	Soils	3
HRT 207	Plant Pest Management	3
<i>One of the following courses:</i>		3
HRT 225	Nursery & Garden Center Management	
BUS 166	Farm Business Management	
<i>One of the following courses:</i>		3
HRT 227	Professional Landscape Management	
AGR 100	Forage and Pasture Crop Management	
HRT 231	Planting Design I	3
HRT 269	Professional Turf Care	3
<i>One of the following courses:</i>		3
BUS 100	Introduction to Business	
BUS 111	Principles of Supervision I	
BUS 200	Principles of Management	
BUS 205	Human Resource Management	
MKT 100	Principles of Marketing	
MTH 103	Applied Technical Math I	
PSY 120	Human Relations <sup>(1)</sup>	
	<b>TOTAL</b>	<b>29</b>

Total Minimum Credits for a Career Studies Certificate in Horticulture—29.

<sup>(1)</sup> For a listing of approved courses, see Social Sciences Electives located on page 39.

## Industrial Maintenance

This career studies certificate program is intended to provide a range of technical skills sufficiently broad to permit program graduates to gain employment as an entry level maintenance mechanic. Most courses are offered days and evenings. Technical courses do not have prerequisites and may be taken in any order.

Course No.	Course Title	Course Credits
AIR 121	Air Conditioning and Refrigeration I	3
AIR 154	Heating Systems I	3
BLD 140	Principles of Plumbing Trade I	3
DRF 166	Welding Blueprint Reading	2
ELE 140	Basic Electricity and Machinery	4
ENG 100	Basic Occupational Communication <sup>(1)</sup>	3
ITE 102	Computers and Information Systems	2
MTH 103	Applied Technical Mathematics I <sup>(2)</sup>	3
WEL 120	Introduction to Welding	3
TOTAL		26

Total Minimum Credits for a Career Studies Certificate in Industrial Maintenance—26.

- (1) Students whose placement test scores qualify for placement in ENG 111 are encouraged to take ENG 111 in lieu of ENG 100.
- (2) Credit by previous completion for MTH 103 may be awarded to students who successfully complete course work in service area high schools. Students who believe they are eligible for this credit should consult with their advisor.

## Industrial Training

The purpose of the Industrial Training-Mechanical Maintenance, Industrial Training-Precision Instrumentation and the Industrial Training-Technician I, II, & III career studies certificates is for CVCC to have a structure in place which is flexible enough to meet training needs of industry in the region, as well as provide a path to higher education goals for students.

Industry would be allowed to “tailor” a training program in content, length, and class delivery methodology. Depending upon specific course requirements for the certificate, considerable course work may be completed toward an Associate in Applied Science degree in Technical Studies at CVCC.

## Industrial Training - Mechanical Maintenance

Course No.	Course Title	Course Credits
DRF 161	Blueprint Reading I	2
IND 113	Materials and Processes in Manufacturing I	2
IND 236	Total Quality Concepts	3
MAC 161	Machine Shop Practices I	3
MEC 155	Mechanisms	2
MEC 161	Basic Fluid Mechanics - Hydraulics/Pneumatics	3
MTH 103	Applied Technical Mathematics I	3
SAF 126	Principles of Industrial Safety	3
WEL 120	Introduction to Welding	3
WEL 195	Principles of Pipefitting	3
	Work-based Learning <sup>(1)</sup>	2
TOTAL		29

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Mechanical Maintenance—29.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
  - (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

## Industrial Training - Precision Instrumentation

Course No.	Course Title	Course Credits
MTH 103	Applied Technical Mathematics I	3
SAF 126	Principles of Industrial Safety	3
ELE 113	Electricity I	3
ELE 123	Electrical Applications I	1
ELE 114	Electricity II	3
ELE 124	Electrical Applications II	1
ELE 211	Electrical Machines I	4
ELE 156	Electrical Control Systems	3
INS 120	Introduction to Control Systems	2
ELE 233	Programmable Logic Controller Systems I	3
	Work-Based Learning <sup>(1)</sup>	3
TOTAL		29

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Precision Instrumentation—29.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
  - (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

### Industrial Training - Technician I

The completion of the Industrial Training, Technician I, II, and III sequence completes the requirements for an A.A.S. Technical Studies degree in the Electronics Technician.

Course No.	Course Title	Course Credits
ETR 106	Programming Methods for Electrical/Electronic Calculations	2
ETR 113-114	D.C. and A.C. Fundamentals I-II	6
ETR 123	Electronic Applications I	2
ETR 124	Electronic Applications II	1
<i>One of the following computer courses:</i>		
BUS 226	Computer Business Applications	3
ITE 115	Introduction to Computer Applications and Concepts	
ETR 146	Electronic Test and Measuring Equipment	4
ETR 151	Electronic Circuits and Troubleshooting I	2
ETR EEE	Work-Based Learning <sup>(1)</sup>	1
MTH 163	Precalculus I	3
SDV 100	Orientation	1
TOTAL		25

Total Minimum Credits for a Career Studies Certificate in Industrial Training-Technician I—25.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

### Industrial Training - Technician II

Course No.	Course Title	Course Credits
ENG 111	College Composition I	3
ETR 152	Electronic Circuits and Troubleshooting II	2
ETR 223	Communications I	5
ETR EEE	Work-Based Learning <sup>(1)</sup>	2
HLT 100	First Aid and CPR <sup>(2)</sup>	2
IND 165	Principles of Industrial Technology I	4
IND 236	Total Quality Concepts	3
	Social Science Elective <sup>(3)</sup>	3
TOTAL		24

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Technician II-24.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination
- (2) Any two hours of HLT or PED will satisfy the HLT 100 requirement.
- (3) For a listing of approved courses, see Social Sciences Electives located on page 39.

### Industrial Training - Technician III

Course No.	Course Title	Course Credits
ENG 131	Technical Report Writing I	3
ETR 224	Communications II	5
ETR EEE	Work-Based Learning <sup>(1)</sup>	3
IND 237	Fundamentals of ISO 9000	3
	Humanities Elective <sup>(2)</sup>	3
	Social Science Elective <sup>(2)</sup>	3
TOTAL		20

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Technician III-20.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination
- (2) For a listing of approved courses, see Humanities Electives or Social Sciences Electives located on page 39.

### Information Processing

This career studies certificate is designed to provide present and potential students with the fundamentals of current software packages used in business. In addition to the admission requirements established by the College, entry into the program requires a keyboarding skill of 25 words per minute. This career studies certificate program will assist graduates in obtaining entry-level positions as an information processing specialist or office automation specialist.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
AST 101	Keyboarding I	3	-
AST 107	Editing/Proofreading Skills	3	-
<i>One of the following computer courses:</i>		3	-
BUS 226	Computer Business Applications		
ITE 115	Introduction to Computer Applications and Concepts		
ITE 130	Introduction to Internet Services	3	-
ACC 195	QuickBooks	-	1
AST 141	Word Processing I	-	3
ITD 110	Web Page Design I	-	3
ITE 140	Spreadsheet Software	-	3
ITE 150	Desktop Database Software	-	3
TOTAL		12	13

Total Minimum Credits for a Career Studies Certificate in Information Processing—25.

### Medical Coding

This career studies certificate program is designed for persons who desire a career in health care coding. Upon successful completion of the program, students will be eligible to seek employment in hospitals, doctor's offices, nursing facilities, or other health care organizations. Training is provided in International Classification of Diseases Clinical Modification Coding (ICD-9-CM) as well as Current Procedural Terminology (CPT) coding. Classes will be offered in the evening to accommodate those individuals who are employed full-time. Students must receive a "C" or better in all HIT classes to complete the program.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
BIO 141-142	Human Anatomy and Physiology I-II	4	4
<i>One of the following computer courses:</i>		3	-
BUS 226	Computer Business Applications		
ITE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology	-	2
TOTAL		7	6

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
HIT 150	Health Records Management	3	-
HIT 253	Health Records Coding <sup>(1)</sup>	4	-
HIT 195	Healthcare Compliance and Billing	-	3
HIT 254	Advanced Coding and Reimbursement	-	4
TOTAL		7	7

Total Minimum Credits for a Career Studies Certificate in Medical Coding —27.

(1) BIO 141 and 142 must be taken prior to enrolling in HIT 253.

### Medical Transcription

This career studies certificate program is designed for persons who wish to acquire the training appropriate for employment as medical transcriptionists by providing them with the knowledge of anatomy, medical terminology, word processing, medical transcription, and grammar usage. Training is provided using the latest technologies associated with word processing and microcomputers. Credits earned may be applied to the A.A.S degree in Administrative Support Technology.

Course No.	Course Title	First Year	
		1st Sem.	2nd Sem.
AST 101-102	Keyboarding I-II <sup>(1)</sup>	3	3
AST 107	Editing/Proofreading Skills	3	-
<i>One of the following computer courses:</i>		-	3
BUS 226	Computer Business Applications		
IIE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology	-	2
TOTAL		6	8

Course No.	Course Title	Second Year	
		1st Sem.	2nd Sem.
AST 141	Word Processing I	3	-
BIO 141	Human Anatomy and Physiology I	4	-
AST 137	Records Management	-	3
AST 245	Medical Machine Transcription	-	3
TOTAL		7	6

Total Minimum Credits for a Career Studies Certificate in Medical Transcription—27.

(1) Students who have completed prior training in keyboarding may enroll in AST 102. After receiving a minimum grade of "C" in AST 102, the student will automatically receive credit for AST 101.

### Nursing Preparation

This career studies certificate program is designed to accommodate those persons desiring to enter the Lynchburg General Hospital School of Nursing (Registered Nursing) Program.

Course No.	Course Title	First Year		
		1st Sem.	2nd Sem.	Sum Sem.
BIO 141-142	Human Anatomy and Physiology I-II	4	4	-
HLT 138	Principles of Nutrition	2	-	-
PSY 200	Principles of Psychology	3	-	-
SOC 200	Principles of Sociology	3	-	-
PSY 230	Developmental Psychology	-	3	-
ENG 111	College Composition I	-	3	-
BIO 205	General Microbiology	-	-	4
TOTAL		12	10	4

Total Minimum Credits for a Career Studies Certificate in Nursing Preparation—26.

### Optician Theory

This career studies certificate program is designed primarily to prepare selected students in Dispensing Optician theory to satisfy apprenticeship related instructional requirements. Upon successful completion of the program, students will be eligible to take the Virginia State Board Examination leading to licensure as Dispensing Opticians in the state of Virginia. Only students meeting the required 6,000 hours of shop apprenticeship training will be eligible to sit for the state examination. Non-apprentice students may enroll, but will not be eligible for the state examination until they complete the state approved Apprenticeship program. This program is approved by the Virginia Optical Board and the Virginia Department of Labor and Industry. A state license is required for this profession. For information and requirements, contact the Virginia Department of Professional and Occupational Regulation or visit the web site at <http://www.state.va.us/dpor>.

**Curriculum Admission Guidelines:** Interested students are requested to contact the apprenticeship office to determine experience requirements. A placement test is also required of applicants. Deficiencies may require developmental studies.

Course No.	Course Title	Course Credits
OPT 121	Optician Theory I	4
OPT 122	Optician Theory II	4
OPT 123	Optician Theory III	3
TOTAL		11

Total Minimum Credits for a Career Studies Certificate in Optician Theory—11.

### Pharmacy Technology

This career studies program is designed to prepare students for work as Pharmacy Technicians. Upon successful completion of the community college program students must complete the Pharmacy Technician Certification Board exam or other exam approved by the Virginia Board of Pharmacy. Employment opportunities for Pharmacy Technicians are available through hospitals, retail pharmacies, mail order pharmacies, and insurance companies.

**Admission Requirements:** Students must have a high school diploma or equivalent. The following high school or equivalent courses are required: two years of mathematics (one of which must be Algebra) and three years of English. Students with deficiencies will be required to remediate them through developmental studies prior to being considered for program admission.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
<i>One of the following Computer classes:</i>			
BUS 226	Computer Business Applications	-	3
ITE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology <sup>(1)</sup>	2	-
HLT 250	General Pharmacology <sup>(1)</sup>	3	-
HLT 261	Basic Pharmacy I <sup>(1)</sup>	3	-
HLT 263	Basic Pharmacy Lab I <sup>(1)</sup>	1	-
HLT 262	Basic Pharmacy II		3
HLT 264	Basic Pharmacy Lab II		1
HLT 190	Coordinated Internship <sup>(2)</sup>		3
TOTAL		9	10

#### Total Minimum Credits for a Career Studies Certificate in Pharmacy Technology—19

- (1) Courses must be taken prior to enrolling in HLT 190 - Coordinated Internship.
- (2) A background check and/or drug screening test may be required by some pharmacies.

### Photography

This career studies certificate program is intended to provide a broad foundation for individuals interested in a career in photography as well as an opportunity for those individuals interested in photography as an avocation to broaden their horizons. The intent of this program is to balance technical competence with expressive concerns in order to free the individual to find his or her own photographic vision.

Course No.	Course Title	Course Credits
PHT 101-102	Photography I-II	6
PHT 106	Visual Literacy: The Photographic Image	3
<i>Select three of the following:</i>		9
PHT 135	Electronic Darkroom	
PHT 201	Advanced Photography	
PHT 206	Large Format Photography	
PHT 211	Color Photography I	
PHT 231	Photojournalism I	
PHT 247	Alternative Photographic Processes	
PHT 256	Communicating Through the Photographic Sequences	
TOTAL		18

#### Total Minimum Credits for a Career Studies Certificate in Photography—18.

### Plumbing

This career studies certificate program is offered in the evenings and is intended to provide entry level skills for the beginner, as well as continuing education opportunities for the practitioner.

Course No.	Course Title	Course Credits
BLD 140	Principles of Plumbing Trade I	3
BLD 141	Principles of Plumbing Trade II	3
BLD 142	Principles of Plumbing Trade III	3
BLD 143	Plumbing Blueprint Reading	3
BLD 144	Plumbing Code & Certification Preparation	3
TOTAL		15

#### Total Minimum Credits for a Career Studies Certificate in Plumbing—15.

# Career Studies Certificate Programs (pp. 45–57)

**Award:** Certificate in Career Studies

**Length:** Variable (9-29 hours) depending upon the identified need. Normally, program options are equivalent to approximately two semesters of full-time community college work. These programs are designed for part-time students.

**Purpose:** The career studies certificate program is a response to the non-traditional short-term program educational needs of many adults in the College's service area and is designed on a series of specialized program options. These options represent a wide variety of adult career and academic interest course areas. Each of the program options is a distinct "mini-curriculum" within a broader range of adult educational possibilities. Options within the program are intended to represent the minimum college course work considered representative of these fields of study.

**Admission Requirements:** Admission to the career studies certificate program is based upon the general requirements for admission to the College. Deficiencies in general education may require developmental studies. The student is expected to select one of the program options during admission and enrollment.

**Program Requirements:** The Career Studies Certificate curriculum includes selected specialized courses within each program option. The range of course credit varies between program options from 9 to 29 semester hours. Upon satisfactory completion of one of the program options, students receive the Career Studies Certificate. Students may earn more than one certificate as program option requirements are satisfied.

**Program Conditions:** Career Studies Program options will be 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 are available on or off campus; (3) qualified instructors are available, and (4) adequate financial resources are available.

## CSC Program Options:

- American Sign Language
- Apprenticeship
- Artisan - Glass Works
- Artisan - Pottery Works
- Business Management
- Call Center Operations
- Child Development
- Computer Aided Drafting
- Computer Numerical Control
- Cosmetology Theory
- Customer Service
- Designing and Installing Network Systems
- Emergency Medical Technician - Basic
- Emergency Medical Technician - Intermediate
- Entrepreneurship in Small Business
- General Clerical
- Heating, Ventilation, and Air Conditioning
- Horticulture
- Industrial Maintenance
- Industrial Training-Mechanical Maintenance
- Industrial Training-Precision Instrumentation
- Industrial Training-Technician I
- Industrial Training-Technician II
- Industrial Training-Technician III
- Information Processing
- Medical Coding
- Medical Transcription
- Nursing Preparation
- Optician Theory
- Pharmacy Technology
- Photography
- Plumbing
- Professional Communications for Business, Industry, and Government
- Purchasing
- Quality Control
- Teacher Aide
- Water and Wastewater Management
- Welding

## American Sign Language

This career studies certificate program introduces American Sign Language (ASL). Students work toward proficiency in ASL and learn methods for using this language to interpret for the hearing impaired. Occupational opportunities include working as an interpreter in the public schools and/or private practice. The program is designed for part-time students who take classes at night. Students must attain the grade of "C" or better in each ASL course before enrolling in more advanced ASL courses.

Course No.	Course Title	Course Credits
ASL 101	American Sign Language I	3
ASL 102	American Sign Language II	3
ASL 201	American Sign Language III	3
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in American Sign Language—9.

## Apprenticeship

This career studies certificate program is designed for apprentices who are currently employed or those who are in the process of completing an apprenticeship program. This program will enhance their technical skills for the workplace and provide a possible opportunity for advancement. This is a generic program that can be adapted to most apprenticeship trades.

Course No.	Course Title	Course Credits
SDV 100	Orientation	1
ITE 102	Computers and Information Systems	2
ENG 111	College Composition I	3
MTH 103	Applied Technical Mathematics I	3
PSY 120	Human Relations	3
MAC 197	Cooperative Education*	4
	Approved Electives*	8
	TOTAL	24

Total Minimum Credits for a Career Studies Certificate in Apprenticeship—24.

\*Note: Other course prefixes may be substituted to align with actual work experience (i.e. ELE, ETR, AIR, BLD, WEL etc). MAC 197 is for introductory OJT and MAC 297 is for the student who has previous experience in this area and will be capable of a more advanced work process. Work process will be developed around the competencies for selected apprenticeship trade.

## Artisan - Glass Works

This career studies certificate program is designed to assist those students who wish to supplement their abilities and skills in a crafts area contains a specific focus on a particular craft with an eye towards its application in the business community.

Course No.	Course Title	1st Sem.	2nd Sem.
ART 195	Glasswork - Basic Lead	3	-
ART 195	Glasswork - Basic Copper Foil	3	-
ART 195	Glasswork - 3-D Foils	-	3
ART 195	Glasswork - Lampworking	-	3
ART 195	Drawing for Crafts	3	-
ART 195	Fused Glass	3	-
	Approved Electives <sup>(1)</sup>	-	3
	TOTAL	12	9

Total Minimum Credits for a Career Studies Certificate in Artisan - Glass Works—21.

<sup>(1)</sup> Approved electives include ACC 105, BUS 121, BUS 165 or MKT 228.

## Artisan - Pottery Works

This career studies certificate program is designed to assist those students who wish to supplement their abilities and skills in a crafts area contains a specific focus on a particular craft with an eye towards its application in the business community.

Course No.	Course Title	1st Sem.	2nd Sem.
ART 153	Ceramics I	3	-
ART 154	Ceramics II	3	-
ART 235	Functional Ceramics	-	3
ART 236	Sculptural Ceramics	-	3
ART 237	Decorative Ceramics	-	3
ART 195	Drawing for Crafts	3	-
	Approved Electives <sup>(1)</sup>	3	-
	TOTAL	12	9

Total Minimum Credits for a Career Studies Certificate in Artisan - Pottery Works—21.

<sup>(1)</sup> Approved electives include ACC 105, BUS 121, BUS 165 or MKT 228.

### Business Management

This career studies certificate program is designed to assist those persons presently employed in a supervisory capacity in increasing their technical skills. Also it will afford those persons who are interested in a supervisory position an opportunity to prepare themselves for such a position.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
BUS 100	Introduction to Business	3	-
ENG 111	College Composition I	3	-
SDV 100	Orientation	1	-
BUS 111	Principles of Supervision	-	3
<i>One of the following computer courses:</i>			
BUS 226	Computer Business Applications		3
ITE 115	Introduction to Computer Applications and Concepts		3
ENG 116	Writing for Business <sup>(1)</sup>	-	3
TOTAL		7	9

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
ECO 120	Survey of Economics	3	-
	Social Science Elective <sup>(2)</sup>	3	-
BUS 204	Project Management	-	3
BUS 205	Human Resource Management	-	3
TOTAL		6	6

Total Minimum Credits for a Career Studies Certificate in Business Management—28.

<sup>(1)</sup> ENG 112 may be substituted for ENG 116.  
<sup>(2)</sup> For a listing of approved courses, see Social Science Electives located on page 39.

### Call Center Operations

This career studies certificate program is designed for individuals seeking entry-level positions in a call center.

Course No.	Course Title	Course Credits
AST 171	Introduction to Call Center Services	3
BUS 100	Introduction to Business	3
MKT 110	Principles of Selling	3
MKT 195	Fundamentals of Customer Service	3
TOTAL		12

Total Minimum Credits for a Career Studies Certificate in Call Center Operations—12.

### Child Development

This career studies certificate program is designed to meet the needs of students who want to prepare for a career in the child care field and for those already working in a child care facility and want to improve their skills and knowledge. The program offers both theoretical knowledge related to how children develop and practical knowledge about how to meet their developmental needs.

Course No.	Course Title	Course Credits
CHD 120	Introduction to Early Childhood Education	3
CHD 125	Creative Activities for Children	3
CHD 205	Guiding the Behavior of Children	3
HLT 135	Child Health and Nutrition	3
TOTAL		12

Total Minimum Credits for a Career Studies Certificate in Child Development—12.



### Computer Aided Drafting

This career studies certificate program is offered to meet the needs of two populations: (1)employed professionals requiring instruction in state-of-the-art CAD, (2)entering students intending to pursue the Engineering Technology curriculum, but who need foundation work in mathematics. A placement test demonstrating proficiency in Arithmetic or divisional approval is required for admission. Developmental mathematics course work prescribed by placement test scores should be completed while enrolled in this program.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
DRF 201-202	Computer Aided Drafting and Design I-II <sup>(1)</sup>	6	-
DRF 112	Technical Drafting II <sup>(2)</sup>	-	3
IND 113	Materials & Processing in Manufacturing	-	2
ARC 212	Architectural Drafting III	-	3
	TOTAL	6	8

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
DRF 241	Parametric Solid Modeling I	3	-
ARC 233	Advanced Architectural Drafting I	3	-
DRF 262	CAD-Civil Design & Hydrology	-	3
DRF 212	Advanced Technical Drafting II <sup>(1)</sup>	-	3
DRF 280	Design Capstone Project	-	3
	TOTAL	6	9

Total Minimum Credits for a Career Studies Certificate in Computer Aided Drafting—29.

<sup>(1)</sup> Students with credit by previous completion or experience for DRF 201 should enroll in ARC 212.  
<sup>(2)</sup> After receiving a minimum grade of "C" in DRF 112, the student should petition for credit for DRF 201.

### Computer Numerical Control

This career studies certificate program is designed to provide computer numerical control programming and operational skills for the experienced machinist in industry.

Course No.	Course Title	Course Credits
MAC 121	Numerical Control I	3
MAC 122	Numerical Control II	3
MAC 123	Numerical Control III	3
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in Computer Numerical Control—9.

### Cosmetology Theory

This career studies certificate is designed to prepare students in cosmetology/barber theory and to satisfy apprenticeship related instructional requirements. The student needs to complete 3,000 hours of shop apprenticeship training to be eligible to take the Virginia Cosmetology/Barber State Board Examination leading to licensure as a cosmetologist/barber in the state of Virginia. Occupational objectives are to become a licensed hairdresser/barber with the option of being employed in beauty salons/barber shops or self-employed shop owners. This program is approved by the Virginia Cosmetology/Barber Board and the Virginia Department of Labor and Industry. Interested students are requested to contact the Apprenticeship Office.

Course No.	Course Title	Course Credits
COS 81	Cosmetology Theory I	4
COS 82	Cosmetology Theory II	5
	TOTAL	9

Total Minimum Credits for a Career Studies Certificate in Cosmetology Theory—9.

### Customer Service

This career studies certificate program is designed to provide a broad background in fundamental skills, business knowledge, and customer-focused studies. This certificate will provide beneficial academic preparations for individuals seeking entry-level positions in banking, insurance, telemarketing and retail sales. Current employees in positions that require customer contact will receive instruction designed to assist them in career advancement. Students will enhance their knowledge of fundamental concepts required for success in modern business cultures. The majority of courses in this certificate program are acceptable for credit in the A.A.S. Management and Marketing curricula.

Course No.	Course Title	Course Credits
AST 107	Editing/Proofreading Skills	3
BUS 121	Business Mathematics I	3
	<i>One of the following computer courses:</i>	3
BUS 226	Computer Business Applications	
ITE 115	Introduction to Computer Applications and Concepts	
ENG 111	College Composition I	3
MKT 100	Principles of Marketing	3
MKT 195	Fundamentals of Customer Service	3
	<i>Two of the following:</i>	6
ACC 105	Office Accounting	
BUS 236	Communication in Management	
ISR 130	Principles of Insurance	
MKT 110	Principles of Selling	
PSY 120	Human Relations	
	TOTAL	24

Total Minimum Credits for a Career Studies Certificate in Customer Service—24.

## Designing and Installing Network Systems

This career studies certificate program is designed to provide entry level skills for an individual to enter the networking field as a networking associate. The management courses will aid the student in working in a "teamwork" environment to design, install, and maintain small networking systems within an organization, industry, or civic group. The telecommunications management courses will also cover the skills necessary to challenge the Cisco Certified Network Associate (CCNA) Exam. This program can be completed in one or more academic years.

Course No.	Course Title	Course Credits
BUS 100	Introduction to Business	3
BUS 200	Principles of Management	3
<i>One of the following computer courses:</i>		
BUS 226	Computer Business Applications	3
ITE 115	Introduction to Computer Applications and Concepts	
MTH 120	Introduction to Mathematics	3
ITN 154	Networking Fundamentals - Cisco	4
ITN 155	Introductory Routing - Cisco	4
ITN 156	Basic Switching & Routing - Cisco	4
ITN 157	WAN Technologies - Cisco	4
TOTAL		28

Total Minimum Credits for a Career Studies Certificate in Designing and Installing Network Systems—28.

## Emergency Medical Technician-Basic

This career studies certificate program is designed for persons who wish to become emergency medical technicians. An internship will be required at a local hospital or rescue squad. Classes will be offered in the evening to accommodate those individuals who are employed full-time. This program is being offered in coordination with the Blue Ridge Emergency Medical Services.

Course No.	Course Title	Course Credits
EMS 111	Emergency Medical Technician-Basic	6
EMS 100	CPR for Healthcare Providers <sup>(1)</sup>	1
EMS 120	Emergency Medical Technician Basic	1
HLT 141	Introduction to Medical Terminology	2
TOTAL		10

Total Minimum Credits for a Career Studies Certificate in Emergency Medical Technician - Basic—10.

<sup>(1)</sup> Current CPR certification by the American Heart Association as a healthcare provider or American Red Cross Professional may be substituted for EMS 100.

## Emergency Medical Technician-Intermediate

This career studies certificate program is designed to produce competent entry-level EMT Intermediates who can service the community with advanced life support care via the EMS infrastructure. Upon completion of the program, students will be eligible for National Registry testing and certification in Virginia. Employment opportunities for EMT-I's are available with Ambulance, Fire and Rescue Services, Hospitals, Government Departments, Sales and Humanitarian relief organizations.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
EMS 151	Introduction to Advanced Life Support <sup>(1)</sup>	4	-
EMS 170	ALS Internship I	2	-
EMS 153	Basic ECG Recognition	2	-
EMS 157	ALS-Trauma Care	3	-
EMS 155	ALS-Medical Care	-	4
EMS 159	ALS-Special Populations	-	4
EMS 172	ALS Clinical Internship II	-	1
EMS 173	ALS Field Internship I	-	3
TOTAL		11	10

Total Minimum Credits for a Career Studies Certificate in Emergency Medical Technician - Intermediate—21.

<sup>(1)</sup> EMS 151 must be taken prior to taking courses in the second semester. Exceptions to be approved by program director.

## Entrepreneurship in Small Business

This career studies certificate program is designed for persons who wish to acquire the knowledge and skills necessary to organize and manage a small business. This program may be completed in two semesters.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
BUS 121	Business Mathematics I	3	-
BUS 165	Small Business Management	3	-
MKT 228	Promotion	3	-
ACC 105	Office Accounting	-	3
ACC 195	QuickBooks	-	1
BUS 160	Legal Aspects of Small Business Operations	-	1
	Elective <sup>(1)</sup>	-	3
TOTAL		9	8

Total Minimum Credits for a Career Studies Certificate in Entrepreneurship in Small Business—17.

<sup>(1)</sup> This elective may be satisfied by taking one of the following: MKT 110, MKT 282, AST 205, BUS 205, or by Previous Occupational Experience. See the Dean of Business & Allied Health for approval of previous occupational completion.

**General Clerical**

This career studies certificate program is designed to prepare qualified clerical workers for full-time positions. Proficiency in high school English and mathematics is required. The General Clerical program qualifies graduates for full-time employment after one academic year of study.

Course No.	Course Title	Course Credits
BUS 226	Computer Business Applications	3
AST 101-102	Keyboarding I-II <sup>(1)</sup>	6
AST 107	Editing/Proofreading Skills	3
AST 141	Word Processing I	3
AST 230	Introduction to Office Technology	3
BUS 121	Business Mathematics I	3
ENG 111	College Composition I	3
	<b>TOTAL</b>	<b>24</b>

Total Minimum Credits for a Career Studies Certificate in General Clerical—24.

<sup>(1)</sup> Students who have completed prior training in keyboarding may enroll in AST 102. After receiving a minimum grade of "C" in AST 102, the student will automatically receive credit for AST 101.

**Heating, Ventilation, and Air Conditioning**

This career studies certificate program is offered primarily in the evening and may be completed in a two-year period. The curriculum offers a series of HVAC courses which prepare individuals with entry level skills. Students interested in the HVAC program are strongly advised to consult with their advisor while planning a program of study and to continue doing so on a regular basis during this program of study.

Course No.	Course Title	Course Credits
AIR 121	Air Conditioning and Refrigeration I	3
AIR 134, 135	Circuits and Controls I, II	8
AIR 154, 155	Heating Systems I, II	6
AIR 158	Mechanical Codes	2
AIR 165	Air Conditioning Systems I	4
AIR 205	Hydronics and Zoning	3
AIR 235	Heat Pumps	3
	<b>TOTAL</b>	<b>29</b>

Total Minimum Credits for a Career Studies Certificate in Heating, Ventilation, and Air Conditioning—29.

**Horticulture**

This career studies certificate program is designed to prepare students for entry-level positions in nurseries, garden centers, landscape operations or upgrade knowledge and skills for those already employed in one of these careers. Graduates find jobs in greenhouse businesses, golf course operations, landscaping and landscape maintenance businesses and horticultural sales.

Course No.	Course Title	Course Credits
HRT 108	Plant Identification	2
HRT 110	Principles of Horticulture	3
HRT 111	Landscape Horticulture	3
HRT 205	Soils	3
HRT 207	Plant Pest Management	3
<i>One of the following courses:</i>		3
HRT 225	Nursery & Garden Center Management	
BUS 166	Farm Business Management	
<i>One of the following courses:</i>		3
HRT 227	Professional Landscape Management	
AGR 100	Forage and Pasture Crop Management	
HRT 231	Planting Design I	3
HRT 269	Professional Turf Care	3
<i>One of the following courses:</i>		3
BUS 100	Introduction to Business	
BUS 111	Principles of Supervision I	
BUS 200	Principles of Management	
BUS 205	Human Resource Management	
MKT 100	Principles of Marketing	
MTH 103	Applied Technical Math I	
PSY 120	Human Relations <sup>(1)</sup>	
	<b>TOTAL</b>	<b>29</b>

Total Minimum Credits for a Career Studies Certificate in Horticulture—29.

<sup>(1)</sup> For a listing of approved courses, see Social Sciences Electives located on page 39.

## Industrial Maintenance

This career studies certificate program is intended to provide a range of technical skills sufficiently broad to permit program graduates to gain employment as an entry level maintenance mechanic. Most courses are offered days and evenings. Technical courses do not have prerequisites and may be taken in any order.

Course No.	Course Title	Course Credits
AIR 121	Air Conditioning and Refrigeration I	3
AIR 154	Heating Systems I	3
BLD 140	Principles of Plumbing Trade I	3
DRF 166	Welding Blueprint Reading	2
ELE 140	Basic Electricity and Machinery	4
ENG 100	Basic Occupational Communication <sup>(1)</sup>	3
ITE 102	Computers and Information Systems	2
MTH 103	Applied Technical Mathematics I <sup>(2)</sup>	3
WEL 120	Introduction to Welding	3
TOTAL		26

Total Minimum Credits for a Career Studies Certificate in Industrial Maintenance—26.

- (1) Students whose placement test scores qualify for placement in ENG 111 are encouraged to take ENG 111 in lieu of ENG 100.
- (2) Credit by previous completion for MTH 103 may be awarded to students who successfully complete course work in service area high schools. Students who believe they are eligible for this credit should consult with their advisor.

## Industrial Training

The purpose of the Industrial Training-Mechanical Maintenance, Industrial Training-Precision Instrumentation and the Industrial Training-Technician I, II, & III career studies certificates is for CVCC to have a structure in place which is flexible enough to meet training needs of industry in the region, as well as provide a path to higher education goals for students.

Industry would be allowed to “tailor” a training program in content, length, and class delivery methodology. Depending upon specific course requirements for the certificate, considerable course work may be completed toward an Associate in Applied Science degree in Technical Studies at CVCC.

## Industrial Training - Mechanical Maintenance

Course No.	Course Title	Course Credits
DRF 161	Blueprint Reading I	2
IND 113	Materials and Processes in Manufacturing I	2
IND 236	Total Quality Concepts	3
MAC 161	Machine Shop Practices I	3
MEC 155	Mechanisms	2
MEC 161	Basic Fluid Mechanics - Hydraulics/Pneumatics	3
MTH 103	Applied Technical Mathematics I	3
SAF 126	Principles of Industrial Safety	3
WEL 120	Introduction to Welding	3
WEL 195	Principles of Pipefitting	3
	Work-based Learning <sup>(1)</sup>	2
TOTAL		29

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Mechanical Maintenance—29.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
  - (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

## Industrial Training - Precision Instrumentation

Course No.	Course Title	Course Credits
MTH 103	Applied Technical Mathematics I	3
SAF 126	Principles of Industrial Safety	3
ELE 113	Electricity I	3
ELE 123	Electrical Applications I	1
ELE 114	Electricity II	3
ELE 124	Electrical Applications II	1
ELE 211	Electrical Machines I	4
ELE 156	Electrical Control Systems	3
INS 120	Introduction to Control Systems	2
ELE 233	Programmable Logic Controller Systems I	3
	Work-Based Learning <sup>(1)</sup>	3
TOTAL		29

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Precision Instrumentation—29.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
  - (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

### Industrial Training - Technician I

The completion of the Industrial Training, Technician I, II, and III sequence completes the requirements for an A.A.S. Technical Studies degree in the Electronics Technician.

Course No.	Course Title	Course Credits
ETR 106	Programming Methods for Electrical/Electronic Calculations	2
ETR 113-114	D.C. and A.C. Fundamentals I-II	6
ETR 123	Electronic Applications I	2
ETR 124	Electronic Applications II	1
<i>One of the following computer courses:</i>		
BUS 226	Computer Business Applications	3
ITE 115	Introduction to Computer Applications and Concepts	
ETR 146	Electronic Test and Measuring Equipment	4
ETR 151	Electronic Circuits and Troubleshooting I	2
ETR EEE	Work-Based Learning <sup>(1)</sup>	1
MTH 163	Precalculus I	3
SDV 100	Orientation	1
TOTAL		25

Total Minimum Credits for a Career Studies Certificate in Industrial Training-Technician I—25.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination

### Industrial Training - Technician II

Course No.	Course Title	Course Credits
ENG 111	College Composition I	3
ETR 152	Electronic Circuits and Troubleshooting II	2
ETR 223	Communications I	5
ETR EEE	Work-Based Learning <sup>(1)</sup>	2
HLT 100	First Aid and CPR <sup>(2)</sup>	2
IND 165	Principles of Industrial Technology I	4
IND 236	Total Quality Concepts	3
	Social Science Elective <sup>(3)</sup>	3
TOTAL		24

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Technician II-24.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination
- (2) Any two hours of HLT or PED will satisfy the HLT 100 requirement.
- (3) For a listing of approved courses, see Social Sciences Electives located on page 39.

### Industrial Training - Technician III

Course No.	Course Title	Course Credits
ENG 131	Technical Report Writing I	3
ETR 224	Communications II	5
ETR EEE	Work-Based Learning <sup>(1)</sup>	3
IND 237	Fundamentals of ISO 9000	3
	Humanities Elective <sup>(2)</sup>	3
	Social Science Elective <sup>(2)</sup>	3
TOTAL		20

Total Minimum Credits for a Career Studies Certificate in Industrial Training - Technician III-20.

- (1) Work-based learning is satisfied by completion of any one, or a combination of:
- (a) Journeyman Card
  - (b) 3 credit co-op work experience
  - (c) Standard Industry Examination
- (2) For a listing of approved courses, see Humanities Electives or Social Sciences Electives located on page 39.

### Information Processing

This career studies certificate is designed to provide present and potential students with the fundamentals of current software packages used in business. In addition to the admission requirements established by the College, entry into the program requires a keyboarding skill of 25 words per minute. This career studies certificate program will assist graduates in obtaining entry-level positions as an information processing specialist or office automation specialist.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
AST 101	Keyboarding I	3	-
AST 107	Editing/Proofreading Skills	3	-
<i>One of the following computer courses:</i>		3	-
BUS 226	Computer Business Applications		
ITE 115	Introduction to Computer Applications and Concepts		
ITE 130	Introduction to Internet Services	3	-
ACC 195	QuickBooks	-	1
AST 141	Word Processing I	-	3
ITD 110	Web Page Design I	-	3
ITE 140	Spreadsheet Software	-	3
ITE 150	Desktop Database Software	-	3
TOTAL		12	13

Total Minimum Credits for a Career Studies Certificate in Information Processing—25.

### Medical Coding

This career studies certificate program is designed for persons who desire a career in health care coding. Upon successful completion of the program, students will be eligible to seek employment in hospitals, doctor's offices, nursing facilities, or other health care organizations. Training is provided in International Classification of Diseases Clinical Modification Coding (ICD-9-CM) as well as Current Procedural Terminology (CPT) coding. Classes will be offered in the evening to accommodate those individuals who are employed full-time. Students must receive a "C" or better in all HIT classes to complete the program.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
BIO 141-142	Human Anatomy and Physiology I-II	4	4
<i>One of the following computer courses:</i>		3	-
BUS 226	Computer Business Applications		
ITE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology	-	2
TOTAL		7	6

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
HIT 150	Health Records Management	3	-
HIT 253	Health Records Coding <sup>(1)</sup>	4	-
HIT 195	Healthcare Compliance and Billing	-	3
HIT 254	Advanced Coding and Reimbursement	-	4
TOTAL		7	7

Total Minimum Credits for a Career Studies Certificate in Medical Coding —27.

(1) BIO 141 and 142 must be taken prior to enrolling in HIT 253.

### Medical Transcription

This career studies certificate program is designed for persons who wish to acquire the training appropriate for employment as medical transcriptionists by providing them with the knowledge of anatomy, medical terminology, word processing, medical transcription, and grammar usage. Training is provided using the latest technologies associated with word processing and microcomputers. Credits earned may be applied to the A.A.S degree in Administrative Support Technology.

Course No.	Course Title	First Year	
		Course Credits	
		1st Sem.	2nd Sem.
AST 101-102	Keyboarding I-II <sup>(1)</sup>	3	3
AST 107	Editing/Proofreading Skills	3	-
<i>One of the following computer courses:</i>		-	3
BUS 226	Computer Business Applications		
IIE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology	-	2
TOTAL		6	8

Course No.	Course Title	Second Year	
		Course Credits	
		1st Sem.	2nd Sem.
AST 141	Word Processing I	3	-
BIO 141	Human Anatomy and Physiology I	4	-
AST 137	Records Management	-	3
AST 245	Medical Machine Transcription	-	3
TOTAL		7	6

Total Minimum Credits for a Career Studies Certificate in Medical Transcription—27.

(1) Students who have completed prior training in keyboarding may enroll in AST 102. After receiving a minimum grade of "C" in AST 102, the student will automatically receive credit for AST 101.

### Nursing Preparation

This career studies certificate program is designed to accommodate those persons desiring to enter the Lynchburg General Hospital School of Nursing (Registered Nursing) Program.

Course No.	Course Title	First Year		
		Course Credits		
		1st Sem.	2nd Sem.	Sum Sem.
BIO 141-142	Human Anatomy and Physiology I-II	4	4	-
HLT 138	Principles of Nutrition	2	-	-
PSY 200	Principles of Psychology	3	-	-
SOC 200	Principles of Sociology	3	-	-
PSY 230	Developmental Psychology	-	3	-
ENG 111	College Composition I	-	3	-
BIO 205	General Microbiology	-	-	4
TOTAL		12	10	4

Total Minimum Credits for a Career Studies Certificate in Nursing Preparation—26.

### Optician Theory

This career studies certificate program is designed primarily to prepare selected students in Dispensing Optician theory to satisfy apprenticeship related instructional requirements. Upon successful completion of the program, students will be eligible to take the Virginia State Board Examination leading to licensure as Dispensing Opticians in the state of Virginia. Only students meeting the required 6,000 hours of shop apprenticeship training will be eligible to sit for the state examination. Non-apprentice students may enroll, but will not be eligible for the state examination until they complete the state approved Apprenticeship program. This program is approved by the Virginia Optical Board and the Virginia Department of Labor and Industry. A state license is required for this profession. For information and requirements, contact the Virginia Department of Professional and Occupational Regulation or visit the web site at <http://www.state.va.us/dpor>.

**Curriculum Admission Guidelines:** Interested students are requested to contact the apprenticeship office to determine experience requirements. A placement test is also required of applicants. Deficiencies may require developmental studies.

Course No.	Course Title	Course Credits
OPT 121	Optician Theory I	4
OPT 122	Optician Theory II	4
OPT 123	Optician Theory III	3
TOTAL		11

Total Minimum Credits for a Career Studies Certificate in Optician Theory—11.

## Pharmacy Technology

This career studies program is designed to prepare students for work as Pharmacy Technicians. Upon successful completion of the community college program students must complete the Pharmacy Technician Certification Board exam or other exam approved by the Virginia Board of Pharmacy. Employment opportunities for Pharmacy Technicians are available through hospitals, retail pharmacies, mail order pharmacies, and insurance companies.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
<i>One of the following Computer classes:</i>			
BUS 226	Computer Business Applications	-	3
ITE 115	Introduction to Computer Applications and Concepts		
HLT 141	Introduction to Medical Terminology <sup>(1)</sup>	2	-
HLT 250	General Pharmacology <sup>(1)</sup>	3	-
HLT 261	Basic Pharmacy I <sup>(1)</sup>	3	-
HLT 263	Basic Pharmacy Lab I <sup>(1)</sup>	1	-
HLT 262	Basic Pharmacy II		3
HLT 264	Basic Pharmacy Lab II		1
HLT 190	Coordinated Internship <sup>(2)</sup>		3
TOTAL		9	10

### Total Minimum Credits for a Career Studies Certificate in Pharmacy Technology—19

(1) Courses must be taken prior to enrolling in HLT 190 - Coordinated Internship.

(2) A background check and/or drug screening test may be required by some pharmacies.

## Photography

This career studies certificate program is intended to provide a broad foundation for individuals interested in a career in photography as well as an opportunity for those individuals interested in photography as an avocation to broaden their horizons. The intent of this program is to balance technical competence with expressive concerns in order to free the individual to find his or her own photographic vision.

Course No.	Course Title	Course Credits
PHT 101-102	Photography I-II	6
PHT 106	Visual Literacy: The Photographic Image	3
<i>Select three of the following:</i>		9
PHT 135	Electronic Darkroom	
PHT 201	Advanced Photography	
PHT 206	Large Format Photography	
PHT 211	Color Photography I	
PHT 231	Photojournalism I	
PHT 247	Alternative Photographic Processes	
PHT 256	Communicating Through the Photographic Sequences	
TOTAL		18

### Total Minimum Credits for a Career Studies Certificate in Photography—18.

## Plumbing

This career studies certificate program is offered in the evenings and is intended to provide entry level skills for the beginner, as well as continuing education opportunities for the practitioner.

Course No.	Course Title	Course Credits
BLD 140	Principles of Plumbing Trade I	3
BLD 141	Principles of Plumbing Trade II	3
BLD 142	Principles of Plumbing Trade III	3
BLD 143	Plumbing Blueprint Reading	3
BLD 144	Plumbing Code & Certification Preparation	3
TOTAL		15

### Total Minimum Credits for a Career Studies Certificate in Plumbing—15.

### Professional Communication for Business, Industry, and Government

This career studies certificate program prepares students to communicate effectively in professional contexts. The curriculum provides skills needed by individuals who wish to enter, or are currently employed in, business, industry, and government. Students will receive an introduction to electronic technology used by visual artists and designers, a sound foundation in composing and editing on computers, and an increased skill in individual, small group, and public communication.

**Special Curriculum Completion Requirements:** The student must complete a minimum of six credits of computer-intensive courses.

**Advanced Standing:** The program considers advanced standing for previous education on an individual basis.

Course No.	Course Title	Course Credits
ART 180	Introduction to Computer Graphics <sup>(1)</sup>	3
ENG 111	College Composition I <sup>(2)</sup>	3
ENG 116	Writing for Business <sup>(1)</sup>	3
ENG 131	Technical Report Writing I <sup>(2)</sup>	3
SPD 110	Introduction to Speech Communication	3
	<b>TOTAL</b>	<b>15</b>

Total Minimum Credits for a Career Studies Certificate in Professional Communication for Business, Industry, and Government—15.

(1) Computer intensive.  
 (2) This class may be offered as computer intensive.

### Purchasing

The career studies certificate program is designed to provide a broad background in purchasing. This certificate will provide beneficial academic preparations for individuals seeking entry-level positions in purchasing and for purchasing practitioners who wish to enhance their knowledge of purchasing and in associated business functions. In addition, this certificate program will assist the practitioner in preparing for the Certified Purchasing Manager (CPM) Exam offered by the Institute for Supply Management. The majority of courses in this certificate program are acceptable for credit in the A.A.S. Management and Marketing curricula.

Course No.	Course Title	First Year Course Credits	
		1st Sem.	2nd Sem.
BUS 215	Purchasing and Materials Management	3	-
BUS 200	Principles of Management	3	-
<i>One of the following computer courses:</i>		3	-
BUS 226 ITE 115	Computer Business Applications Introduction to Computer Applications and Concepts		
BUS 234	Supply Chain Management	-	3
MTH 120	Introduction to Mathematics	-	3
	<b>TOTAL</b>	<b>9</b>	<b>6</b>

Course No.	Course Title	Second Year Course Credits	
		1st Sem.	2nd Sem.
ACQ 218	Negotiations of Contracts and Contract Modification	3	-
BUS 241	Business Law I	3	-
ACC 211	Principles of Accounting I	-	4
	Approved Elective <sup>(1)</sup>	-	3
	<b>TOTAL</b>	<b>6</b>	<b>7</b>

Total Minimum Credits for a Career Studies Certificate in Purchasing—28.

(1) Approved electives include BUS 121, BUS 205, ECO 120, MKT 100, MKT 282 or PSY 120.

## Quality Control

This career studies certificate program is designed to provide an individual with entry level skills and also offer in-service upgrading for those individuals currently in the quality control workforce. The program is offered primarily in the evening and may be completed in three academic years as a part-time student.

Course No.	Course Title	Course Credits
ENG 100	Basic Occupational Communication	3
IND 140	Quality Control	2
IND 145	Introduction to Metrology	3
IND 146	Statistical Quality Control	3
IND 148	Auditing Quality Assurance	2
ITE 102	Computers and Information Systems	2
MTH 103	Applied Technical Mathematics I	3
PSY 120	Human Relations	3
	Technical Elective <sup>(1)</sup>	3
	<b>TOTAL</b>	<b>24</b>

Total Minimum Credits for a Career Studies Certificate in Quality Management—24.

(1) Elective should be selected from EGR, MAC, ITE, DRF, MTH, or any other appropriate technical curriculum.

## Teacher Aide

This career studies certificate program is designed to provide entry-level skills as well as in-service upgrading for those individuals currently working as Teacher Aides. The program is offered in the evening.

Course No.	Course Title	Course Credits	
		1st Sem.	2nd Sem.
CHD 117	Introduction to Reading Methods	3	-
CHD 118	Methods & Materials in the Language Arts for Children	3	-
CHD 121	Childhood Educational Development I	3	-
CHD 205	Guiding the Behavior of Children		3
ENG 150	Children's Literature		3
PSY 235	Child Psychology		3
	<b>TOTAL</b>	<b>9</b>	<b>9</b>

Total Minimum Credits for a Career Studies Certificate in Teacher Aide—18.

## Water and Wastewater Management

This career studies certificate program is offered in the evenings, with the ENV prefix courses offered during alternate spring semesters. Students interested in this program should contact the Science, Mathematics, and Engineering Technologies Division.

Course No.	Course Title	Course Credits
ENV 115	Water Purification	3
ENV 149	Wastewater Treatment Plant Operation	3
PSY 120	Human Relations	3
SAF 126	Principles of Industrial Safety	3
	<b>TOTAL</b>	<b>12</b>

Total Minimum Credits for a Career Studies Certificate in Water & Wastewater Management—12.

## Welding

This career studies certificate program is designed to provide entry level skills as a beginning welder. The program is offered primarily in the evening and may be completed in two or three academic years as a part-time student.

Course No.	Course Title	Course Credits
DRF 166	Welding Blueprint Reading	2
MAC 146	Metals/Heat Treatment	2
WEL 120	Introduction to Welding	3
WEL 123-124	Arc Welding I-II	6
WEL 126-127	Pipe Welding I-II	6
WEL 130	Inert Gas Welding	3
WEL 145	Welding Metallurgy	3
WEL 160	Gas Metal Arc Welding (MIG)	3
	<b>TOTAL</b>	<b>28</b>

Total Minimum Credits for a Career Studies Certificate in Welding—28.