

Program of Studies for

Career & Technical Education:

Learning that Works for Virginia

Essex High School

Grades 6 – 12

Contents

SECTION I:	Planning for a Career & Education	3
SECTION II:	Career Clusters	5
SECTION III:	Graduation Requirements, CTE Diploma Seals	7
SECTION IV:	Dual Enrollment	12
SECTION V:	Sample Programs of Study	14
SECTION VI:	Middle and High School Course Descriptions	15
SECTION VII:	Northern Neck Technical Center	23

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SECTION I

Planning Your Program of Study

Career & Technical Education offers students the opportunity to gain skills that will prepare them for future careers in the world of work and/or in their career preparation through post-secondary education. EHS works with the CTE Advisory Council to align career and technical education programs with business and industry expectations. Students earning one or more nationally recognized credentials (industry certifications or licenses) have a distinctive advantage in entering their chosen field of employment and/or in continuing their career preparation through post-secondary education (including apprenticeships, internships, or other post-secondary training).

Academic & Career Plans

The Board of Education included in its 2009 revisions to the Regulations Establishing Standards for Accrediting Public Schools in Virginia, (8 VAC-20-131-5 et seq) provisions for each middle and high school student to have a personal learning plan that aligns academic and career goals with the student's course of study.

8 VAC 20-131-140: College and career preparation programs and opportunities for postsecondary credit. Beginning with the 2012-2013 academic year, all schools shall begin development of a personal Academic and Career Plan for each seventh grade student with completion by the fall of the student's eighth-grade year. Students who transfer from other than a Virginia public school into the eighth-grade shall have the Plan developed as soon as practicable following enrollment. Beginning with the 2013-2014 academic year, students who transfer into a Virginia public school after their eighth-grade year shall have an Academic and Career Plan developed upon enrollment. The components of the Plan shall include, but not be limited to, the student's program of study for high school graduation and a Postsecondary career pathway based on the student's academic and career interests. The Academic and Career Plan shall be developed in accordance with guidelines established by the Board of Education and signed by the student, student's parent or guardian, and school official(s) designated by the principal. The Plan shall be included in the student's record and shall be reviewed and updated, if necessary, before the student enters the ninth and eleventh grades. The school shall have met its obligation for parental involvement if it makes a good faith effort to notify the parent or guardian of the responsibility for the development and approval of the Plan. Any personal academic and career plans prescribed by local school boards for students in grades 7 through 12 and in effect as of June 30, 2009, are approved to continue without further action by the Board.

Definitions

Concentration

A *concentration* is a coherent sequence of state-approved courses as identified in the course listings for a particular CTE program of study.

Completer

A career and technical education *completer* is a student who has met the requirements for a career and technical education concentration (sequence) and all requirements for high school graduation, or an approved alternative education program. Students may take additional career and technical education courses that will enhance their career pathway goals.

Specialization

A *specialization* is a student choice to take additional courses beyond a minimum completer course sequence in a specific career area related to his/her career pathway.

Certifications/Licenses

Completion of certain skill sets and coursework enable students to participate in state Board of Education approved assessments for industry certifications, a state license, or national and/or occupational competency certifications. Students who earn these credentials are eligible to earn verified credits toward graduation requirements.

Career Cluster

Virginia Career and Technical Education Office has adopted the nationally accepted structure of 16 career clusters and their accompanying career pathways.

Source: The above information was taken from the VDOE State CTE Administrative Planning Guide, 2012-2013.

SECTION II: Career Clusters

The 16 Career Clusters

Most careers fall into one of the following 16 Career Clusters. Essex High School* courses/pathways offered either at the high school or through the Northern Neck Technical Center** is marked with asterisks. For more information on Career Cluster, please visit: <http://www.careertech.org/career-clusters/glance/clusters-occupations.html>

***Agriculture, Food & Natural Resources**

The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

****Architecture & Construction**

Careers in designing, planning, managing, building and maintaining the built environment.

***Arts, A/V Technology & Communications**

Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.

***Business Management & Administration**

Business Management and Administration careers encompass planning, organizing, directing and evaluating business functions essential to efficient and productive business operations. Business Management and Administration career opportunities are available in every sector of the economy.

***Education & Training**

Planning, managing and providing education and training services, and related learning support services.

***Finance**

Planning, services for financial and investment planning, banking, insurance, and business financial management.

***Government & Public Administration**

Executing governmental functions to include governance; national security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels.

****Health Science**

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

****Hospitality & Tourism**

Hospitality & Tourism encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services.

***, **Human Services**

Preparing individuals for employment in career pathways that relate to families and human needs.

***, **Information Technology**

Building linkages in IT occupations framework: for entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multimedia, and systems integration services.

***Public Safety, Corrections & Security**

Planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services.

***Manufacturing**

Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.

***Marketing, Sales & Service**

Planning, managing, and performing marketing activities to reach organizational objectives.

***, **Science Technology, Engineering & Mathematics**

Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.

****Transportation, Distribution & Logistics**

Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

SECTION III: Graduation Requirements, CTE Diploma Seals

GRADUATION REQUIREMENTS

Standard Diploma: Minimum Course & Credit Requirements

To graduate with a Standard Diploma, a student must earn at least 22 standard units of credit by passing required courses and electives, and earn at least six verified credits by passing end-of-course SOL tests or other assessments approved by the Board of Education.

The school counselor can advise on available courses to fulfill the requirements for a Standard Diploma.

Standard Diploma Course Requirements (8 VAC 20-131-50.B)				
Discipline Area	Standard Credits Effective with ninth grade classes of 2003-04 through 2009-2010	Standard Credits Revised Standard Diploma Effective with ninth graders 2011-2012	Verified Credits - Effective for ninth graders:	
			2000-01 through 2002-03	2003-04 and beyond
English	4	4	2	2
Mathematics [Note 1]	3	3		1
Laboratory Science [Notes 2 & 6]	3	3		1
History & Social Sciences [Notes 3 & 6]	3	3		1
Health & Physical Education	2	2		
Fine Arts or Career & Technical Education	1			
Foreign Language, Fine Arts, or Career & Technical Education		2		
Economics and Personal		1		

Finance				
Electives [Note 4]	6	4		
Student Selected Test [Note 5]			4	1
Total	22	22	6	6

NOTE 1: Courses completed to satisfy this requirement shall be at or above the level of algebra and shall include at least two course selections from among: Algebra I, Geometry, Algebra II, or other mathematics courses above the level of algebra and geometry. The Board may approve additional courses to satisfy this requirement.

NOTE 2: Courses completed to satisfy this requirement shall include course selections from at least two different science disciplines: earth sciences, biology, chemistry, or physics. The Board may approve additional courses to satisfy this requirement.

NOTE 3: Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and one course in either world history or geography or both. The Board may approve additional courses to satisfy this requirement.

NOTE 4: Courses to satisfy this requirement shall include at least two sequential electives as required by the Standards of Quality.

NOTE 5: A student may utilize additional tests for earning verified credit in computer science, technology, career and technical education or other areas as prescribed by the Board in 8 VAC 20-131-110.

NOTE 6: Students who complete a career and technical [education] program sequence and pass an examination or occupational competency assessment in a career and technical education field that confers certification or an occupational competency credential from a recognized industry, or trade or professional association or acquires a professional license in a career and technical education field from the Commonwealth of Virginia may substitute the certification, competency credential, or license for (1) the student selected verified credit and (2) either a science or history or social science verified credit when the certification, license, or credential confers more than one verified credit. The examination or occupational competency assessment must be approved by the Board of Education as an additional test to verify student achievement.

Electives

- **Sequential Electives** –Students who wish to receive a Standard Diploma and successfully complete two sequential CTE electives, will be terms CTE Completers. Sequential electives do not have to be taken in consecutive years (but it is recommended).
- **Fine Arts and Career and Technical Education** – The Standard and Advanced Studies Diplomas each contain a requirement for one standard unit of credit in Fine Arts or Career and Technical Education. The Standards of Accreditation do not require that courses used to satisfy the requirement of Fine Arts or Career and Technical Education be approved by the Board.

➔ ***Beginning with students entering ninth grade for the first time in 2013-2014, a student must also: Earn a board-approved career and technical education credential to graduate with a Standard Diploma; and successfully complete one virtual course, which may be non-credit bearing.***

Advanced Studies Diploma: Minimum Course & Credit Requirements

To graduate with an Advanced Studies Diploma, a student must earn at least 24 standard units of credit and at least nine verified units of credit. The school counselor can advise on available courses to fulfill the requirements for an Advanced Studies Diploma.

Please note: The school counselor can tell you which courses are offered to fulfill the requirements for an Advanced Studies Diploma.

Advanced Studies Diploma Course Requirements (8 VAC 20-131-50.C)			
Discipline Area	Standard Credits Effective with ninth grade classes of 2003-04 through 2009-2010	Standard Credits Revised Advanced Studies Diploma Effective with ninth graders in 2011-2012	Verified Credits - Effective with ninth graders in 2000-01 and later
English	4	4	2
Mathematics [Note 1]	4	4	2
Laboratory Science [Note 2]	4	4	2
History & Social Sciences [Note 3]	4	4	2
Foreign Languages [Note 4]	3	3	
Health & Physical Education	2	2	
Fine Arts or Career & Technical Education	1	1	
Economics and Personal Finance		1	
Electives	2	3	

Student Selected Test [Note 5]			1
Total	24	26	9

NOTE 1: Courses completed to satisfy this requirement shall be at or above the level of algebra and shall include at least three different course selections from among: Algebra I, Geometry, Algebra II, or other mathematics courses above the level of Algebra II. The Board may approve additional courses to satisfy this requirement.

NOTE 2: Courses completed to satisfy this requirement shall include course selections from at least three different science disciplines from among: earth sciences, biology, chemistry, or physics or completion of the sequence of science courses required for the International Baccalaureate Diploma. The Board may approve additional courses to satisfy this requirement.

NOTE 3: Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and two courses in either world history or geography or both. The Board may approve additional courses to satisfy this requirement.

NOTE 4: Courses completed to satisfy this requirement shall include three years of one language or two years of two languages.

NOTE 5: A student may utilize additional tests for earning verified credit in computer science, technology, career or technical education or other areas as prescribed by the Board in 8 VAC 20-131-110.

Electives

- **Fine Arts and Career and Technical Education** – The Standard and Advanced Studies Diplomas each contain a requirement for one standard unit of credit in Fine Arts or Career and Technical Education. The Standards of Accreditation do not require that courses used to satisfy the requirement of Fine Arts or Career and Technical Education be approved by the Board. ECPS school officials shall use their own judgment in determining which courses students take to satisfy the requirement of a unit of credit in Fine Arts or Career and Technical Education for the Standard and Advanced Studies Diplomas.
- **Foreign Language**—The Advanced Studies Diploma contains a requirement for either three years of one foreign language or two years of two languages. In March 1998, the Board of Education approved the provision of three years of instruction in American Sign Language (ASL) for foreign language credit toward an Advanced Studies Diploma; other foreign languages will satisfy this requirement as well. Details of this action are available in: **Superintendent's Memo**, Interpretive, #1, June 12, 1998.

→ ***Beginning with students entering ninth grade for the first time in 2013-2014, a student must successfully complete one virtual course, which may be non-credit bearing, to graduate with an Advanced Studies Diploma.***

CTE Diploma Seals

Board of Education's Career & Technical Education Seal – Awarded to students who:

- Earn a Standard or Advanced Studies Diploma and complete a prescribed sequence of courses in a career and technical education concentration or specialization that they choose and maintain a "B" or better average in those courses
- OR pass an examination or an occupational competency assessment in a career and technical education concentration or specialization that confers certification or occupational competency credential from a recognized industry, trade or professional association

- OR acquire a professional license in that career and technical education field from the Commonwealth of Virginia.

The Board of Education shall approve all professional licenses and examinations used to satisfy these requirements.

SECTION IV: Dual Enrollment

Dual Enrollment in CTE:

WHAT IS DUAL ENROLLMENT?

Dual enrollment allows high school students to meet the requirements for high school graduation while simultaneously earning college credit in selected classes.

WHO BENEFITS?

Students benefit! Studies show that students who acquire college credits while still in high school are more likely to continue their education beyond high school than those who do not.

The families of the high school students benefit. College credits taken during high school help reduce the financial burden of full-time college tuition.

Additionally, students successfully completing DE classes are well on their way to their associate degree and/or a Career Studies Certificate (which would be valuable for employment).

WHAT COURSES ARE OFFERED FOR DUAL ENROLLMENT IN CAREER & TECHNICAL EDUCATION AT ESSEX HIGH SCHOOL? (Other courses are also available at NNTC.)

<u>Courses</u>	<u>H.S. Credit</u>	<u>Total College Credit</u>
Introduction to Business (BUS 100)	1	3
Business Management (BUS200)	1	3
Introduction to Internet Services (ITE130)	1	3
Web Design (ITD 110)	1	3
Computer Information Systems (ITE 100)	1	3
Accounting 1 (ACCT124)	1	3
Survey of Economics (ECON120)		
Proposed		

HOW DO STUDENTS ENROLL?

First, the principal must approve the cross-registration of the high school student to the community college. Second, the student must complete an application for admission and the community college must accept the high school student for admission to the college level course. An entrance test must be passed as well. This process needs to take place in the spring of the year preceding taking any DE classes.

WHO IS ELIGIBLE?

Any high school juniors and seniors who are 16 years of age or older are eligible to participate in the dual enrollment arrangement between the school and the community college. School and community college officials will take the necessary steps (placement test) to assure that every student who is registered under the dual enrollment arrangement is amply prepared for the demands of a college level course. Under some circumstances, a sophomore may also be granted admission to the college and take dual enrollment courses at EHS.

WHO PAYS FOR DUAL ENROLLMENT CLASSES?

Currently, ECPS pays the tuition for students to be enrolled in DE classes.

SECTION V: Sample Programs of Study

SAMPLE PROGRAM OF STUDY FOR MIDDLE SCHOOL:

GRADE 6	GRADE 7	GRADE 8
Language Arts	Language Arts	Language Arts
Social Studies	Social Studies	Social Studies
Mathematics	Mathematics	Mathematics
Science	Science	Science
Health/PE	Health/PE	Health/PE
*Elective	*Elective	*Elective
*Elective	*Elective	*Elective

*French I, Spanish I, Art, Music/Band,

CTE: Computer Solutions, Computer Applications – [Proposed]

SAMPLE PROGRAM OF STUDY FOR HIGH SCHOOL:

GRADE 9	GRADE 10	GRADE 11	GRADE 12
English 9	English 10	English 11	English 12
World Geography	Ancient World History	U.S. History	U. S. Government
Earth Science	Biology	Chemistry	Physics
Algebra I	Geometry	Algebra II	Statistics
Health/PE	Health/PE	^Economics/Personal Finance	^Economics/Personal Finance
*CTE Course	*CTE Course	*CTE Course	*CTE Course
*Elective	*Elective	*Elective	*Elective

^May be taken in Junior or Senior year

***See Course Descriptions for CTE Courses**

SECTION VI: Middle and High School Course Descriptions

Agriculture, Food, & Natural Resources

The Agriculture, Food & Natural Resources discipline contains two programs of study. These programs prepare students to enter various occupations in horticulture, natural resources management, outdoor recreation, parks, and tourism. Agricultural Education stresses the development of skills in many phases of agricultural businesses and industries. Students learn skills related to planning, management, safety, finances, and leadership. An integral part of the agricultural education program is the FFA. The FFA provides all agricultural education students opportunities to apply knowledge and skills learned in the classroom. Leadership activities practiced in class and through FFA enhance the experiences of the students. A component of the student's grade is a set of competencies/tasks where the student must demonstrate specific skills. In each of these courses, a student's grade is based on traditional class work as well as course competency completion.

Course Code	Course Title	9	10	11	12
8053	Agricultural Education Development	X	X		
8040	Introduction to Natural Resources & Ecology Systems		X	X	
8034	Horticulture Sciences			X	X
8036	Landscaping			X	X
8043	Outdoor Recreation, Parks, & Tourism Systems Management			X	X

Agricultural Education Development – 8053 – Year Long

Grade Levels: 9-10

This would be an introductory level class for all other courses and pathways within the Agriculture, Good & Natural Resources Career Cluster. Approximately one-half of this course is devoted to areas of horticulture, including growing and reproducing plants, and investigating the landscaping and floriculture industries. However, as this course is meant to be customized by the instructor, a wide variety of areas is represented, including woodworking; agricultural science, mechanics, tools, and machinery; animal care; ecology and environmental management; forestry; parks and natural resource management; and business operations.

Introduction to Natural Resources and Ecology Systems – 8040 – Year Long

Grade Levels: 10-11

Prerequisite: Agricultural Education Development

This course serves as the introductory level course for the Natural Resources Career Pathway. Students will explore the study of natural resources and begin to develop skills and knowledge required for employment in occupations related to forestry, wildlife and natural resources management, and conservation.

Outdoor Recreation, Parks, and Tourism Systems Management - 8043 - Year Long

Grade Levels: 10-11

Prerequisite: Agricultural Education Development

This course will offer instruction in the development and management of recreational areas and parks and the economic and environmental impact of tourism. Instruction in this course will also strengthen career skills relative to the outdoor parks, recreation and tourism industries.

Horticulture Sciences - 8034 – Year Long

Grade Levels: 11-12

Prerequisite: Agricultural Education Development

In this course, students develop the necessary knowledge, skills, habits, and attitudes for entry-level employment and advancement in areas such as floriculture, landscape design, greenhouse operation, nursery plant production, and turf management. They receive instruction in using soil and other plant-growing media and in identifying, propagating, and growing horticultural plants in the greenhouse and land laboratory. Instruction is provided in safety practices and leadership development.

Landscaping - 8036 – Year Long

Grade Levels: 11-12

Prerequisite: Agricultural Education Development

In this course, students develop the necessary knowledge, skills, habits, and attitudes for entry-level employment and advancement in areas such as landscape design, landscape construction, and landscape maintenance. They receive instruction in sketching and drawing, analyzing a landscape site, designing for function and aesthetics, identifying and selecting landscape plants, purchasing and installing plants, and maintaining the landscape by watering, fertilizing, mulching, pruning, and controlling pests.

Available Industry Credentials:

National Career Readiness

Workplace Readiness Skills for the Commonwealth

Commercial Pesticide Applicator

Forestry Products & Processing

Natural Resource Systems

Private Applicator

Registered Technician

Greenhouse Application

Business Administration & Management Cluster

Business Management & Administration offers students current technological advances in computer applications, systems, and communications, and presents opportunities to learn about finance, banking and credit, financial planning, accounting, business law, management. Students are taught what ‘Dressing for Success’ means in the world of business. The Future Business Leaders of America (FBLA) is the Career and Technical Education student organization designed to develop personal employability and leadership skills for all students enrolled in business and information technology courses. Through participation in the organization, the business students learn leadership skills, how to hold office and direct the affairs of a group, to work with representatives of other student organizations, and to compete with their colleagues in other schools. A component of the student’s grade is a set of competencies/tasks where the student must demonstrate specific skills. In each of these courses, a student’s grade is based on traditional class work as well as course competency completion.

Course Code	Course Title	9	10	11	12
6115	Principles of Business & Marketing	X	X		
6320	Accounting I*		X	X	
6321	Accounting II			X	X
6131	Business Law		X	X	X
6630	Business Management*			X	X
6120	Economics and Personal Finance*			X	X
6621	Office Administration		X	X	X
6730	Medical Systems Administration		X	X	X

**Dual Enrollment available*

Principles of Business and Marketing – 6115 – Year Long

Grade Levels: 9-10

Prerequisites: None

Students discover the roles of business and marketing in the free enterprise system and the global economy. Basic financial concepts of banking, insurance, credit, inheritance, taxation, and investments are investigated to provide a strong background as students prepare to make sound decisions as consumers, wage earners, and citizens. The real-world impact of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career development skills and explores career options.

Business Law – 6131 - Semester

Grade Levels: 11-12

Students examine the foundations of the American legal system and learn the rights and responsibilities of citizens. Students gain practical knowledge and life skills by exploring economic and social concepts related to laws governing business and individuals. Focus areas include contracts, consumer protection, criminal law, tort law, international law, family/domestic law, employment law, and careers in the legal profession. The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Accounting - 6320 - Year Long

Grade Levels: 10-11

Students study the basic principles, concepts, and practices of the accounting cycle for a service business and a merchandising business. Topics covered include analyzing transactions, journalizing and posting entries, preparing payroll records and financial statements, and managing cash systems. Ethics and professional conduct are emphasized. Students learn fundamental accounting procedures using both manual and electronic systems.

Advanced Accounting - 6321 – Year Long

Grade Levels: 11-12

Prerequisite: Accounting

Students gain knowledge of advanced accounting principles, procedures, and techniques used to solve business problems and to make financial decisions. Students use accounting and spreadsheet software to analyze, synthesize, evaluate, and interpret business financial data. Students work in a technology-integrated environment using authentic workplace industry scenarios that reflect current industry trends and standards.

Business Management - 6135DE – Year Long

This course allows the option of dual enrollment through RCC for 3 credits.

Grade Levels: 11-12

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course.

Office Administration - 6621DE – Semester or Year Long

Grade Levels: 10-12

Recommended Prerequisite: Computer Applications or CIS

Students enhance word processing and communication skills as they develop competencies needed by administrative support professionals. Students study office procedures such as information processing, telecommunications, electronic record management, and financial records management.

Medical Systems Administration - 6730DE – Semester

Grade Levels: 11-12

Recommended Prerequisite: Computer Applications

Students enhance word processing and communication skills as they develop competencies needed by administrative support professionals. Students study office procedures such as information processing, telecommunications, electronic record management, and financial records management

Available Industry Credentials:

National Career Readiness

Workplace Readiness Skills for the Commonwealth

Microsoft Office Specialist

Internet and Computing Core Certification (IC3)

WISE Financial Literacy

Accounting Basic and Advanced

Banking & Related Services

Information Technology Cluster

The Information Technology Cluster offers students current technological advances in computer applications, systems, and communications, using the latest software available. Students are taught what ‘Dressing for Success’ means in the world of business. The Future Business Leaders of America (FBLA) is the Career and Technical Education student organization designed to develop personal employability and leadership skills for all students enrolled in business and information technology courses. Through participation in the organization, the business students learn leadership skills, how to hold office and direct the affairs of a group, to work with representatives of other student organizations, and to compete with their colleagues in other schools. A component of the student’s grade is a set of competencies/tasks where the student must demonstrate specific skills. In each of these courses, a student’s grade is based on traditional class work as well as course competency completion.

Course Code	Course Title	9	10	11	12
6611	Computer Applications	X	X		
6670	Information Technology (IT) Fundamentals	X	X		
6614	Computer Information Systems*		X	X	X
6615	Advanced Computer Information Systems*		X	X	X
6630	Design, Multimedia, and Web Technologies*			X	X
6631	Advanced Design, Multimedia, and Web Technologies*			X	X

*Dual Enrollment courses

Computer Solutions – 6610 – Year Long

Grade Levels: 7, 8

Students are introduced to the world of business using the computer as a problem-solving tool. Emphasis is placed on using basic touch keyboarding skills to complete a variety of projects incorporating word processing, database, presentation, and spreadsheet software. Basic Internet safety and computer maintenance issues are important components of this course.

Computer Applications – 6611 – Year Long

Grade Levels: 8, 9, 10

Students develop or review correct keyboarding techniques and gain a basic knowledge of word processing, spreadsheet, database, graphics, and telecommunications applications. Students demonstrate an understanding of computer concepts through application of knowledge. Students learn to use software packages and local and worldwide network communications systems. Grade 8 Computer/Technology Standards of Learning are incorporated and reinforced in this course.

Information Technology (IT) Fundamentals – 6670 – Year Long

Grade Levels: 9, 10

Information Technology (IT) Fundamentals introduces the essential technical and professional skills required for students to pursue programs leading to professional careers and IT certifications. Students investigate career opportunities and technologies in four major IT areas: Information Services and Support, Network Systems, Programming and Software Development, and Interactive Media. Students will evaluate the impact of IT on other career clusters. The focus of the IT Fundamentals course is the introduction of skills related to information technology basics, Internet fundamentals, network systems, computer maintenance/upgrading/troubleshooting, computer applications, programming, graphics, Web page design, and interactive media. Students explore ethical issues related to computers and Internet technology and develop teamwork and communication skills that will enhance their employability.

Clusters, Pathways, Occupations

Computer Information Systems – 6614 – Semester

This course allows the option of dual enrollment through RCC for 3 credits.

Grade Levels: 10-12

Prerequisites: Computer Applications

In Computer Information Systems, students apply problem-solving skills to real-life situations through word processing, spreadsheet, database, and multimedia presentation software, and through integrated software activities. Students work individually and in groups to explore computer concepts, operating systems, networks, and telecommunications, and emerging technologies.

Clusters, Pathways, Occupations

Advanced Computer Information Systems – 6615 – Semester

This course allows the option of dual enrollment through RCC for 3 credits.

Grade Levels: 10-12

Prerequisites: Computer Information Systems*

Students apply problem-solving skills to real-life situations through advanced integrated software applications, including printed, electronic, and Web publications. Students work individually and in groups to explore advanced computer maintenance activities, Web site development, programming, networking, emerging technology, and employability skills.

Design, Multimedia & Web Technology - 6630DE - Semester

This course allows the option of dual enrollment through RCC for 3 credits.

Grade Levels: 11-12

Prerequisites: Computer Information Systems

Students develop proficiency in creating desktop publications, multimedia presentations/projects, and Web sites using industry standard application software. Students incorporate principles of layout and design in completing publications and projects. Students design portfolios that may include business cards, newsletters, mini-pages, Web pages, multimedia presentations/projects, calendars, and graphics.

Advanced Design, Multimedia & Web Technology - 663100DE - Semester

This course allows the option of dual enrollment through RCC for 3 credits.

Grade Levels: 11-12

Prerequisite: Design, Multimedia & Web Technology

Students develop advanced skills in creating interactive media, Web sites, and publications for print and electronic distribution. Students work with sophisticated hardware and software applying skills learned to real-world projects.

***Design, Multimedia & Web Technology and Advanced DMWT would need to be taken in the same year.**

Available Industry Credentials:

National Career Readiness

Workplace Readiness Skills for the Commonwealth

Microsoft Office Specialist

Internet and Computing Core Certification (IC3)

Human Services

The courses offered in the Human Services Cluster provide students with a set of experiences to prepare them for adulthood; to help them become competent in the management of their individual, family and work lives; and to help them apply these skills to jobs and careers. The curriculum includes the development of the process skills of managing work and family life, solving personal and family problems, relating to others, and assuming a leadership role as responsible citizens. All students enrolled, are encouraged to join the local chapter of the Virginia Association - Family, Career and Community Leaders of America. A component of the student's grade is a set of competencies/tasks where the student must demonstrate specific skills. In each of these courses, a student's grade is based on traditional class work as well as course competency completion.

Course Code	Course Title	9	10	11	12
8227	Life Planning	X	X		
8232	Child Development & Parenting	X	X		
8228	Nutrition & Wellness	X	X		
8237	Introduction to Family & Human Services			X	X
8205	Career, Community & Family Connections			X	X

Child Development & Parenting – 8232 – Year Long

Grade Levels: 9, 10

Students enrolled in Child Development and Parenting focus on analyzing parenting roles and responsibilities, ensuring a healthy start for mother and child, evaluating support systems that provide services for parents, and evaluating parenting practices that maximize human growth and development. Critical thinking, practical problem solving using case studies, and entrepreneurship opportunities within the area of parenting responsibilities and child development are emphasized. Teachers highlight the basic skills of mathematics, science, and technology when appropriate. The cooperative education method is available for this course; in this method, classroom instruction is combined with on-the-job training in an approved position, supervised continuously throughout the school year, to broaden the students' educational experiences.

Life Planning – 8227 – Year Long

Life Planning equips students with the skills to face the challenges in today's society. Students will develop a life-management plan which includes Developing Career, Community, and Life Connections; Applying Problem-Solving Processes to Life Situations; Creating and Maintaining Healthy Relationships; Developing Strategies for Lifelong

Career Planning; Developing a Financial Plan; Examining Components of Individual and Family Wellness; and Demonstrating Leadership within the Community. Critical thinking and practical problem solving are emphasized through relevant life applications. The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Introduction to Family & Human Services – 8237 – Semester

Grade Levels: 11 – 12

Prerequisite: Family Relations

Students enrolled in Family Relations focus on analyzing the significance of the family, nurturing human development in the family throughout the life span, analyzing factors that build and maintain healthy family relationships, developing communication patterns that enhance family relationships, dealing effectively with family stressors and conflicts, managing work and family roles and responsibilities, and analyzing social forces that influence families across the life span. Critical thinking, practical problem solving, and entrepreneurship opportunities within the area of family responsibilities and services are emphasized.

Career, Community & Family Connections – 8205 – Semester

Grade Levels: 11 – 12

Prerequisite: Family Relations

Career, Community, and Family Connections focuses on balancing the multiple demands of career, family, and personal life. The course teaches problem solving, conflict management, goal setting, stress management, and resource management in work and family. Interpersonal skills, needed to build strong relationships in the family and workplace, are also incorporated. The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Nutrition & Wellness – 8228 – Year Long

Grade Levels: 9, 10

Prerequisite: None

Students enrolled in Nutrition and Wellness focus on making choices that promote wellness and good health; analyzing relationships between psychological and social needs and food choices; choosing foods that promote wellness; obtaining and storing food for self and family; preparing and serving nutritious meals and snacks; selecting and using equipment for food preparation; and identifying strategies to promote optimal nutrition and wellness of society. Critical thinking, practical problem solving, and entrepreneurship opportunities within the area of nutrition and wellness are emphasized.

Available Industry Credentials:

National Career Readiness

Workplace Readiness Skills for the Commonwealth

Marketing

The Marketing Cluster offers courses in introductory business and marketing, fashion design, and travel and tourism. Students are presented with a curriculum that will guide them into the world of work and/or post-secondary training. All students enrolled, are encouraged to join the local chapter of DECA. A component of the student’s grade is a set of competencies/tasks where the student must demonstrate specific skills. In each of these courses, a student’s grade is based on traditional class work as well as course competency completion.

Course Code	Course Title	9	10	11	12
6115	Principles of Business & Marketing	X	X		
8248	Introduction to Fashion Design & Marketing	X	X	X	
8165	Travel & Tourism Marketing		X	X	X

Principles of Business and Marketing – 6115 – Year Long

Grade Levels: 9-10

Prerequisites: None

Students discover the roles of business and marketing in the free enterprise system and the global economy. Basic financial concepts of banking, insurance, credit, inheritance, taxation, and investments are investigated to provide a strong background as students prepare to make sound decisions as consumers, wage earners, and citizens. The real-world impact of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career development skills and explores career options.

Introduction to Fashion Design & Marketing – 8248 – Year Long

Grade Levels: 9, 10

Prerequisite: None

The design and merchandising competencies for this course focus on identifying and exploring the individual careers within the apparel, accessory, and textile design, manufacturing, and merchandising industry. Units of study include the relationships that exist among all areas of the clothing industry; related global and economic issues; apparel, accessory, and textile technology; exploration of careers, including entrepreneurial opportunities in related areas; and the skills and personal characteristics necessary for success in careers in the apparel, accessory, and textile design, manufacturing, and marketing industry.

Travel & Tourism Marketing – 8165 – Year Long

Grade Levels: 10-12

Prerequisite: None

Students gain knowledge of the travel/tourism industry to include cruises, airlines, lodging, and car rental. They develop skills in the areas of communication, human relations, customer service, industry technology, and marketing. In addition, students obtain an understanding of the global nature of the industry, travel planning, and the career options available. Academic skills (mathematics, science, English, and history/social science) related to the content are a part of this course. Computer/technology applications supporting this course are studied.

Available Industry Credentials:

National Career Readiness

Workplace Readiness Skills for the Commonwealth

SECTION VII: Northern Neck Technical Center

Course Offerings at Northern Neck Technical Center

Auto Body Repair I: Collision & Repair (11 – 12) 8679, 8680 **Transportation, Distribution & Logistics**

Auto Body Repair II: Painting & Refinishing

The Collision Repair Technology course is designed to give training in automobile body repair, body construction, all types of collision repair including frame and wheel alignment, body panel repair and replacement, MIG welding, brazing, spot repairing and estimating.

Repairpersons must be able to analyze correctly all types of body damage and restore vehicles to their original appearances. This is a two-year program, but students may return for a third year through special arrangements.

Auto Servicing Tech I: 11- 12 8710 – 8711
Auto Servicing Tech I

Transportation, Distribution & Logistics

The Auto Technology program is designed to provide a thorough knowledge of the mechanics of the modern automobile and all its supporting systems, to develop an individual's mechanical ability, and develop interest in an automotive repair and service career. The curriculum is designed primarily for persons who seek full-time employment in the automotive maintenance and general repair field immediately upon completion of the two-year program. The course will develop the student's skills in the use of the most modern automotive repair tools and equipment.

For one to advance successfully in this program of study, a thorough understanding of the automobile, its basic operating principles, mechanical aptitude, and manual dexterity are required.

The curriculum follows the standards of A.S.E. (National Institute for Automotive Service Excellence) and includes: engine performance, use of diagnostic equipment, the theory of computer-controlled automotive systems, electronic systems, and VA State inspections.

Carpentry, Residential Construction I: 11 -12 8515, 8516 **Architecture & Construction**
Carpentry, Residential Construction II

This group of instructional programs prepares students to erect, install, maintain, and repair buildings, and other structures using materials such as metal, wood, stone, brick, glass, concrete and composition substances.

Students develop skills in estimating costs; cutting, fastening, and fitting various materials; using hand and power tools; and following technical specifications and blueprints.

Most importantly, students construct our current JOIST house, putting their skills to practical application.

Cosmetology I, II: 11, 12 8527, 8528

Human Services

Cosmetology is a two-year course. It provides training in manicuring, shampooing, permanent waving, facials, massages, scalp treatment, hair cutting, chemical relaxing and styling. A student who satisfactorily completes the two years of study in cosmetology at the center qualifies to take the State Board Examination to become a licensed cosmetologist.

This course is restricted to eleventh and twelfth graders who should be ready to take the state board exam just after graduation from high school.

***Engineering, Drawing & Design: 11-12 8493, 8492**
***Architectural Drawing and Design**

STEM
Architecture & Construction

The Engineering/Architecture Drawing design course is a one year program broken down into two parts. The first semester students learn Technical Drawing and Engineering aspects of the class and the second semester is exclusively spent on Architecture and house design.

Engineering Drawing and Design recommended for students who have an interest in Computer-Aided Drafting, engineering, architecture, interior design, gaming, and animation. The course will begin by exploring the fundamentals of mechanical drafting such as sketching, 2D drawings, 3D drawings, and dimensioning. The students will then progress to work with the latest version of the AutoCAD software to produce multi-view drawings, isometric drawings, 3D modeling, and product designs.

Architecture Drawing and Design introduces students to the basic terminology, concepts, and principles of architectural design. Emphasis is placed on house designs, floor plans, roof designs, elevations (interior and exterior), schedules, and foundations. This course is designed to familiarize the students with the fundamentals of quality design and the construction of residential and commercial models utilizing drafting, CADD and physical models.

Computer Maintenance Technology: Computer Systems Technician I, II 8622, 8623
Information Technology

This course is designed to provide students with classroom and laboratory experience in current and emerging networking technology that will empower them to enter employment and/or further education and training in the computer networking field. A task analysis of current industry standards and occupational analysis was used in the development of the content standards. This two-year course begins with a focus on PC desktop repair and maintenance and the first year. Networking is stressed during the second.

Instruction includes, but is not limited to, safety, networking, networking terminology and protocols, network standards, LANs, WANs, OSI models, Ethernet, Token Ring, Fiber Distributed Interface, TCP/IP Addressing Protocol, Dynamic Routing, Routing, and the Network Administrator's role and function. Particular emphasis is given to the use of decision-making and problem solving techniques in applying science, mathematics, communication, and social studies concepts to solve networking problems.

In addition, instruction and training are provided in the proper care, maintenance and use of networking software, tools and equipment, and all local, state and federal safety, building and environmental codes and regulations.

***Culinary Arts I, II, III: 8275, 8276, 8277** **Human Services**

The Culinary Arts course is designed to prepare students for entering employment in food service occupations. The training program is particularly valuable because a major portion of the student's skill is acquired through actual cooking, study in the use and care of equipment, food standards and proper sanitation procedures, including public health aspects of food handling. It is a two-year program. Students may take a third year with emphasis on catering.

Electricity I, II: 8533, 8544 **Architecture & Construction**

With the growth of housing and industry, more appliances and electrical equipment are showing up in the environment and there has become a need for electricians and technicians to install, repair, and maintain these commodities. Residential wiring is the basis for all these areas that involve the transportation and use of electricity. This career can be continued in Community college or a job training program offered by many large industries.

***Emergency Medical Technician I, II 8333, 8334 (One Year Program) Health Sciences**

Students will learn CPR for the Professional Rescuer and Advanced First Aid during the month of September; then they will be able to take the Emergency First Responder Course. Students will learn lifesaving skills, how to assist with childbirth, and how to identify and manage different medical emergencies. If they are successful in passing this class, they will be qualified to sit for the State Exam and become a Virginia Certified Emergency First Responder. Participants must be 16 years of age by January 1 in order to take the Emergency First Responder Course and Exam. Students who pass the placement test will receive four community college hours through a partnership with Rappahannock Community College upon successfully completing the course.

***Nurse Aide: 8362 (One year program) Health Services**

This is a college level course with dual enrollment at Rappahannock Community College. Nursing Assistant is a one-year program designed to help a student learn basic knowledge and develop skills necessary to become a nursing aide. In health care facilities, this work generally consists of bathing patients, tracking and recording vital signs and other duties that enable nurses to devote more time to work requiring professional and technical training.

This program consists of theory and practice in the classroom setting, and clinical experience in the local nursing homes and hospitals. At the completion of this program, students will be eligible to take the State Board of Nurse's Aide Examination. This examination consists of both a written and manual test. Successful completion allows the student to be placed on the State Registry for Certified Nurse's Aides.

****Dual Enrollment Courses***

In addition, the ***Governor's Academy for Agriculture & Maritime Studies*** will be opening for 9 – 12 grade students in the fall of 2013 at NNTC. Please contact a guidance counselor for more information. Proposed courses will include Engineering and Civil Engineering.

STEM Program TBA, Fall of 2013

