



# Commonwealth of Virginia Plan of Study

School: T.C. Williams High School

Date: 12/2019

Cluster: **Information Technology** Pathway: Network Systems (Cybersecurity/Cloud Computing)

This Career Pathway Plan of Study can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Mathematics	Science	Social Studies/ Science	Other Required Courses Recommended Electives Learner Activities	Recommended Career and Technical Courses Source: Administrative Planning Guide <a href="http://www.cteresource.org/apg/">http://www.cteresource.org/apg/</a>	<b>SAMPLE – Occupations Relating to This Pathway:</b> <a href="http://www.doe.virginia.gov/instruction/career_technical/career_clusters/sample_plans_study/index.shtml">http://www.doe.virginia.gov/instruction/career_technical/career_clusters/sample_plans_study/index.shtml</a> <a href="http://www.careerclusters.org">http://www.careerclusters.org</a> <a href="http://www.cteresource.org/cpg/">http://www.cteresource.org/cpg/</a>	
		NOTE: Indicate State Course Titles and Codes							
<b>Graduation Requirements: <a href="http://www.doe.virginia.gov/instruction/graduation/index.shtml">http://www.doe.virginia.gov/instruction/graduation/index.shtml</a></b>									
<b>MIDDLE</b>	7	English 7 (1110)	Math 7 (3111)	Life Science (4115)	U S History (2354)	Health, PE, Family Life (7120)	Computer Solutions (6609) .5 Elective	<ul style="list-style-type: none"> <li>• Cloud Computing and Strategy SME</li> <li>• Cloud Engineer</li> <li>• Information Systems Administrator</li> <li>• Information Systems Operator</li> <li>• Information Technology Engineer</li> <li>• Network Administrator</li> <li>• Network Architect</li> <li>• Network Engineer</li> <li>• Network Manager</li> <li>• Network Operations Analyst</li> <li>• Network Security Analyst</li> <li>• PC Support/User Specialist</li> <li>• Systems Administrator</li> <li>• Telecommunications Network Technician</li> </ul>	
	8	English 8 (1120)	Math 8 (3112) or Algebra I (3130)	Physical Science (4125)	Civics & Economics (2357)	Health, PE, Family Life (7120)	Digital Technologies Foundations (6160) .5 Elective		
<b>Career Assessment:</b> Administration of a career assessment instrument at the middle school level used to help students and their parents plan for high school and beyond.									
<b>SECONDARY</b>	9	English 9 (1130)	Algebra I (3110) or Geometry (3143)	Biology (4310)	World History/ Geography I (2215)	Economics and Personal Finance (6120) Health & PE (2 years) Foreign Language (3 years) Other Electives to Complement Pathway (Core Academic and CTE)	Cybersecurity Fundamentals (6302)		
	10	English 10 (1140)	Geometry (3143) or Algebra II (3135)	Earth Sciences (4210)	World History/ Geography II (2216) or AP World (2380)		DE Computer Network Hardware I and II (8542/8543)		
	11	English 11 (1150) or AP Language (1196) or DE College Composition (1601)	Algebra II (3135) or Pre-Calculus (3162)	Chemistry (4410)	US/VA History (2360) or DE US History or AP US History (2319)		Electronics I (8416)		
	12	English 12 (1160) or AP Literature (1195) or DE World Literature (1602)	Pre-Calculus (3162) or AP Calculus BC (3177)	Advanced Science*	US/VA Government(2440) or AP Government (2445)		Electronics II (8412)		
<b>High school courses in the pathway offered locally for college credit should be coded: DE (Dual Enrollment) and/or VC (Validated Credit)</b>									
<b>List related certifications/credentials approved by VDOE and offered locally:</b> <a href="http://www.cteresource.org/apg">http://www.cteresource.org/apg</a> (Go to Certification - License Section.) A+ Certification Examination; Cisco Certified Entry Networking Technician (CCENT) Cisco Certified Networking Professional (CCNP) Routing and Switching Examination; Cisco Certified Networking Professional (CCNP) Security Examination; Cloud Essentials Certification Examination; CompTIA IT Fundamentals+ Certification Examination; Microsoft Office Specialist (MOS) Examinations; Microsoft Technology Associate (MTA) Examinations; Workplace Readiness Skills for the Commonwealth Examination.						<b>Additional Learning Opportunities:</b> CTSO Organization(s): <input type="checkbox"/> DECA <input checked="" type="checkbox"/> FBLA <input type="checkbox"/> FCCLA <input type="checkbox"/> FFA <input type="checkbox"/> Educators Rising <input type="checkbox"/> HOSA <input checked="" type="checkbox"/> SkillsUSA <input checked="" type="checkbox"/> TSA			
<b>Postsecondary:</b> Placement Assessments such as Virginia Placement Test or Accuplacer						<b>Work-Based Learning:</b> <input type="checkbox"/> Clinical <input checked="" type="checkbox"/> Cooperative Education <input checked="" type="checkbox"/> Internship <input checked="" type="checkbox"/> Mentorship <input checked="" type="checkbox"/> Externship <input type="checkbox"/> School-Based Enterprise <input checked="" type="checkbox"/> Job Shadowing <input checked="" type="checkbox"/> Service Learning Project <input checked="" type="checkbox"/> Youth Registered Apprenticeship <input type="checkbox"/> Entrepreneurship			
<b>College Entrance Exams</b> such as ACT & SAT									

**SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY**

Individual plans must include locally agreed upon courses at the postsecondary level (See page 2)

<b>POSTSECONDARY</b>	<b>Pathway</b>	<b>Associate Degree, College Certificate, or Apprenticeship</b>	<b>Bachelors Degree</b>	<b>Postgraduate Degree</b>
	Network Systems	Information Systems Technology: Cloud Computing Specialization, A.A.S.	Locally Determined	Locally Determined

College: [Northern Virginia Community College](#)

School Division(s): [Alexandria City Public Schools](#)

**Postsecondary:** Placement Assessments such as Virginia Placement Test, SAT or ACT

<b>POSTSECONDARY - COMMUNITY COLLEGE or APPRENTICESHIP - Determined Locally</b>	Semester	English	Mathematics	Science	Social Studies	Required Courses or Recommended Electives			
	<b>POSTSECONDARY PLAN OF STUDIES MUST INCLUDE POSTSECONDARY ACADEMIC, CTE, AND OTHER ELECTIVE COURSES APPROPRIATE FOR AN ASSOCIATE DEGREE.</b>								
Year 1 1 <sup>st</sup> Semester	ENG 111 College Compositions I	MTH 154 Quantitative Reasoning				ITP 100 Software Design	ITE115 Introduction to Computer Applications and Concepts	SVD100 Orientation	Social/Behavioral Science Elective
Year 1 2 <sup>nd</sup> Semester		ITP Programming Elective				ITN 101 Intro to Network Concepts	ITN 257 Cloud Computing Infrastructure and Services	ITD 256 Advanced Database Management	Humanities/Fine Arts Elective
Year 2 1 <sup>st</sup> Semester	CST Elective					ITN 107 Personal Computer Hardware and Troubleshooting	ITN 170 Linux System Administration	ITN 213 Information Storage and Management	IT Elective
Year 2 2 <sup>nd</sup> Semester			Social/Behavioral Science Elective			ITD 110 Web Page Design I	ITN 200 Administration of Network Resources	ITN 254 Virtual Infrastructure Installation and Configuration	ITN 260 Network Security Basics

College courses offered locally in the high school for college credit should be coded: **DE (Dual Enrollment) and/or VC (Validated Credit)**

**Related Industry Certifications Available:**

**Additional Suggested Learning Opportunities:**

**Work-Based Learning:**

- Clinical  Cooperative Education  Internship  Mentorship  Externship  School-Based Enterprise  Job Shadowing  Service Learning Project  Youth Registered Apprenticeship  Entrepreneurship

**UNIVERSITY** **University/College:** George Mason University  
**Degree or Major:** New ADVANCE Degree in partnership with Amazon Web Services (AWS) being planned. B.A.S. Applied Sciences- Cloud Computing  
**Number of Articulated CC Credits:** 10+ depending on core classes taken & AP scores.

**Notes:** Transfer is not the primary purpose of an A.A.S. program, but NOVA is planning an articulation agreement with George Mason. The new George Mason Bachelor of Applied Science - Cloud Computing degree will offer NOVA ADVANCE students an articulation agreement to transfer this career oriented program pathway from a two-year A.A.S. to a four-year bachelor's degree in cloud computing. The new ADVANCE degree program will be designed to guide students through NOVA to the bachelor's degree completion at Mason. NOVA and George Mason faculty worked in unison with AWS Educate curriculum designers to create a pathway that will help students pursue careers in cloud architecture, cybersecurity, software development and DevOps, a system of software development and delivery.