



# Commonwealth of Virginia Plan of Study

Student Name: \_\_\_\_\_

School: \_\_\_\_\_

Date: \_\_\_\_\_

Cluster: Science, Technology, Engineering & Mathematics

Pathway: Engineering

*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 www.doe.virginia.gov/VDOE/ Instruction/CTE/apg/	SAMPLE – Occupations Relating to This Pathway: www.doe.virginia.gov/VDOE/ Instruction/CTE/careerclusters/ www.careerclusters.org www.cteresource.org/cpg/	
<b>Graduation Requirements: <a href="http://www.doe.virginia.gov/2plus4in2004/index.shtml">http://www.doe.virginia.gov/2plus4in2004/index.shtml</a></b>									
<b>MIDDLE</b>	7	English	Math 7/3111	4115/Life Science	Social Studies 7/2355	Health & PE	8462 Technological Systems/ 8464 Inventions and Innovations	<ul style="list-style-type: none"> <li>- Aeronautical/Aerospace Engineer</li> <li>- Agricultural Engineer/Technician</li> <li>- Application Engineer</li> <li>- Architectural Engineer</li> <li>- Automotive Engineer</li> <li>- Biomedical/Biotechnology Engineer</li> <li>- CAD Technician</li> <li>- Chemical Engineer</li> <li>- Civil Engineer</li> <li>- Communications Engineer</li> <li>- Computer Engineer</li> <li>- Computer Hardware Engineer</li> <li>- Computer Programmer</li> <li>- Construction Engineer</li> <li>- Drafter</li> <li>- Electrical/Electronic/Engineering Technician</li> <li>- Electrical Engineer</li> <li>- Geothermal Engineer</li> <li>- Industrial Engineer/Technician</li> <li>- Manufacturing Engineer/Technician</li> <li>- Marine Engineer</li> <li>- Mechanical Engineer</li> <li>- Metallurgist</li> <li>- Mining Engineer</li> <li>- Nuclear Engineer</li> <li>- Petroleum Engineer</li> <li>- Product/Process Engineer</li> <li>- Survey Technician</li> <li>- Systems Engineer</li> <li>- Transportation Engineer</li> </ul>	
	8	English	Math 8/3112	4125/Physical Science 8	Social Studies 8/2220 Civics & Economics	Health & PE	8402 Technology Foundations		
<b>Career Assessment:</b> Administration of a career assessment instrument is appropriate at the middle school level to help students and their parents plan for high school (Virginia's Career Planning System or other assessment product).									
<b>SECONDARY</b>	9	English	Algebra I	Earth Sciences	World History/ Geography	Health & PE (2 years) Foreign Language (3 years) Other Electives to Complement Pathway (Core Academic and CTE):	8404 Technology Transfer		
	10	English	Geometry	Biology	World History/ Geography		8406 Technology Assessment		
	11	English	Algebra II	Chemistry	US/VA History	Technical Drawing and Design, Pre-Calculus, Calculus	8490A Introduction to Engineering		
	12	English	Trigonometry/ Advanced Algebra	Physics (or Principles of Technology I and II)	US/VA Government		8491A Advanced Engineering		
<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.doe.virginia.gov/VDOE/Instruction/CTE/apg/">http://www.doe.virginia.gov/VDOE/Instruction/CTE/apg/</a> (Go to Section 9.)						<b>Additional Learning Opportunities:</b> CTSO Organization(s): <input type="checkbox"/> DECA <input type="checkbox"/> FBLA <input type="checkbox"/> FCCLA <input type="checkbox"/> FFA <input type="checkbox"/> FEA <input type="checkbox"/> HOSA <input type="checkbox"/> SkillsUSA <input type="checkbox"/> TSA			
						<b>Work-Based Learning:</b> <input type="checkbox"/> Career Research <input type="checkbox"/> Cooperative Education <input type="checkbox"/> Internship <input type="checkbox"/> Mentorship <input type="checkbox"/> Job Shadowing <input type="checkbox"/> Service Learning Project <input type="checkbox"/> Student Apprenticeship			
<b>Postsecondary: Placement Assessments such as COMPASS &amp; SAT II</b>						<b>College Entrance Exams such as ACT &amp; SAT</b>			
<b>POSTSECONDARY</b>	<b>SAMPLE POSTSECONDARY PROGRAMS RELATED TO THIS CAREER PATHWAY</b> Individual plans must include locally agreed upon courses at the postsecondary level (See page 2)								
	<b>Pathway</b>		<b>Associate Degree, College Certificate, or Apprenticeship</b>			<b>Bachelors Degree</b>		<b>Postgraduate Degree</b>	
	Science, Technology, Engineering & Mathematics		Engineering AS (JSRCC)			Engineering BS			

College: [J. Sargeant Reynolds Community College](#)

School Division(s): \_\_\_\_\_

Postsecondary: Placement Assessments such as COMPASS & SAT II

POSTSECONDARY - COMMUNITY COLLEGE or APPRENTICESHIP - Determined Locally	Semester	English	Mathematics	Science	Social Studies	Required Courses or Recommended Electives			
	POSTSECONDARY PLAN OF STUDIES MUST INCLUDE POSTSECONDARY ACADEMIC, CTE, AND OTHER ELECTIVE COURSES APPROPRIATE FOR AN ASSOCIATE DEGREE.								
	Year 1 1 <sup>st</sup> Semester	ENG 111 College Composition I DE	MTH 173 Calculus with Analytic Geo. I	CHM 111 College Chemistry I	SDV 100 College Success Skills	Personal Wellness Elective	EGR 124 Intro. To Engineering & Eng. Methods DE		
	Year 1 2 <sup>nd</sup> Semester	ENG 112 College Composition II DE	MTH 174 Calculus with Analytic Geo. II	EGR 123 Intro. To Engineering Design DE or EGR 110 Engineering Graphics	Humanities/Fine Arts Elective	Personal Wellness Elective	EGR 140 Engineering Mech.-Statics or EGR Engineering Elective		
	Year 2 1 <sup>st</sup> Semester	Social/Behavioral Science Elective	MTH 277 Vector Calculus	PHY 241 University Physics I	EGR Engineering Elective	EGR 206 Engineering Economy or EGR Engineering Elective			
Year 2 2 <sup>nd</sup> Semester	Social/Behavioral Science Elective	MTH 279 Ordinary Differential Equations	PHY 242 University Physics II	Humanities/Fine Arts elective Elective	EGR Engineering Elective				

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:**

- Cooperative Education   
  Internship   
  Mentorship  
 Job Shadowing   
  Service Learning Project   
  Registered Apprenticeship

UNIVERSITY

University/College:  
Degree or Major:  
Number of Articulated CC Credits:

Notes: