

Gloucester County Public Schools
GAITE Career Pathway Model for Mechanical Engineering Technology



Career Cluster: Science, Technology, Engineering and Mathematics

Career Pathway: Engineering and Technology

Technical Studies: Mechanical Engineering Technology

Related Industry Certifications Available:

NOCTI, Brainbench CADD, IC3, and Workplace Readiness

Transferable Credits: up to 33 credits



	Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses		
Middle School	7					Inventions and Innovations (8461)		
	8		Math 8 Or Algebra I (3130)			Technological Systems (8462)		

Career Assessment: 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).

	Grade	English	Math	Science	S.S.	Required Courses or Recommended Electives and/or CTE Courses		Related Careers
SECONDARY <i>Career</i>	9	English 9 1130	Algebra I (3130) Or Geometry (3143) Or Algebra II (3135)	Earth Science (4210) Or Honors Biology (4310)	World History (2340) Or Geography (2210)	Health & PE (7310/7320) and For. Language and Keyboarding (if necessary) (6151)	Basic Technical Drawing (8435) or IT Fundamentals (6670)	<ul style="list-style-type: none"> • Automated Manufacturing Technician • Calibration Technician • Manager, Supervisor • Quality Control Technician • Quality Engineer • Precision Inspector • Production Manager

10	English 10 1140	Geometry (3143) Or Algebra II (3135) Or Alg II/Trig (3137) Or Math Analysis (3162) Or Trigonometry (3150)	Biology (4310) Or Chemistry (4410)	World History (2340) or Geography (2221)	Health & PE(7410/7425) and For. Language (if necessary) Or Keyboarding (if necessary) (6151)	Engineering Drawing (8436) (DRF 231) DE	Principles of Engineering I (Introduction to Engineering) (8490)	<ul style="list-style-type: none"> • Mechanical Engineering Technician • Industrial Engineer Technician • Engineering Assistant • Project Manager • Drafter • Mechanical Engineer
11	English 11 1150 Or AP English	Geometry (3143) Or Algebra II (3135) Or Trigonometry (3150) Or Math analysis (3162)	Chemistry (4410) Or Biology II (BIO 101 BIO 102) DE Or AP Chemistry (4470) Or Physics (4510) Or Oceanography (4250) Or Environmental Science (4610) (Bio 270 Bio 275) DE	US/VA History (2360)	For. Lang (if necessary)	Computer Integrated Manufacturing PLTW (8421)	Principles of Engineering II PLTW (8441)	
12	*English 12 1160 (Eng 111/112) DE Or AP English	Trigonometry (3150) Or Math Analysis (3162) Or Calculus AB (3177) (MTH 173) DE Or AP Statistics (3192)	Physics AP (4510) BIO 101 BIO 102) DE Or AP Chemistry (4470) Or Physics (4510) Or Oceanography (4250) Or Environmental Science (4610) (Bio 270 Bio 275) DE	US/VA Gov (2440) (PLS 121, 122) DE Or AP Government (2445)		Computerized Numerical Controls(CNC) – NHREC (0570) (MAC 121,122)	Computer Integrated Manufacturing PLTW (8421)	

Postsecondary Placement Assessments (Reading, Writing, & Math)

POSTSECONDARY Community College <i>Career Placement</i>	Year 1 1st Semester	College Composition I (ENG 111) (If not taken as dual enrollment)	Pre-Calculus I (MTH 163) (If not taken as dual enrollment)	College Success Skills (SDV 100)	Engineering Drawing Fundamentals (DRF 151) (If not taken as dual enrollment)	Materials and Processes of Industry (MEC 113) (If not taken as dual enrollment)	Intro to Eng. Tech (MEC 100) (If not taken as dual enrollment)				
	Year 1 2nd Semester	Principles of Economics I (ECO 201)	Social Science Elective	College Composition II (ENG 112) (If not taken as dual enrollment)	Health or PE Elective (HLT/PED)	Pre-Calculus II (MTH 164) (If not taken as dual enrollment)	Mechanics I-Statics for Engineering Tech (MEC 131) (If not taken as dual enrollment)				
	Year 2 1st Semester	Adv. Tech. Drafting I Or Parametric Solid Modeling (DRF 211 or 241) (If not taken as dual enrollment)	Mechanics II-Strength of Materials for Eng. Tech. (MEC 132) (If not taken as dual enrollment)	College Physics PHY 201	Calculus I (MTH 173) (If not taken as dual enrollment)	Electronic Circuits and Instrumentation (MEC 103)	Elective chosen from MEC, DRF, or IND 145				
	Year 2 2nd Semester	Humanities Elective	College Chemistry (CHM 111)	Mechanics III—Dynamics for Eng. Tech (MEC 133)	College Physics (PHY 202)	Basic Fluids Mechanic-Hydraulics/Pneumatics (MEC 161) Or Polymers and Composites (MEC 220)					
4-year Institution	University/College: Old Dominion University Degree or Major: Mechanical Eng. Tech. Number of Articulated CC Credits:					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc;">Future DL classes to be offered</td> </tr> <tr> <td>DE Dual Credit course (HS to CC)</td> </tr> <tr> <td>DL Distance Learning AP Advanced Placement</td> </tr> </table>			Future DL classes to be offered	DE Dual Credit course (HS to CC)	DL Distance Learning AP Advanced Placement
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CAREER PATHWAY SUPPLEMENTAL INFORMATION

TOPIC: Career-Technical Student Organization Related Activities	TOPIC: Work-Based Learning (Cooperative Education, Mentoring, Internships, Job Shadowing, and Service Learning)
<p>Skills USA Related Activities:</p> <p>3-D Visualization and Animation Architectural Drafting Automated Manufacturing Technology CNC Milling Technology CNC Turning Technology Customer Service Electronics Applications Electronics Technology Entrepreneurship Mechatronics Occupational Health and Safety Power Equipment Technology Precision Machining Technology Principles of Technology Related Technical Math Robotics and Automation Technology Sheet Metal TeamWorks Technical Drafting Total Quality Management Welding</p>	<p><u>COOPERATIVE EDUCATION</u> Cooperative education is a method of instruction that combines career and technical classroom instruction with directly related paid employment. <i>The Career and Technical Education Cooperative Education Handbook</i> provides detailed information concerning development, regulations, teacher qualifications, and operation and management. Co-op is available through the following related courses in this pathway: Accounting; Advanced Computer Information Systems; Computer Information Systems; Design, Multimedia, and Web Technologies; and Digital Input Technologies.</p> <p><u>JOB SHADOWING</u> Job shadowing is a short-term, career-exploration form of worksite experience in which the student “shadows” (follows) a competent worker for a brief period of time. Job shadowing usually is the first form of worksite assignment given to students and is less intensive than mentoring, internship, and service learning</p> <p><u>MENTORING</u> Mentoring is a relationship between an experienced person (the mentor) and a less experienced person, such as a student (the mentee), in which the mentor provides guidance, support, feedback and skill instruction to the mentee. School-coordinated mentoring is more complex than job shadowing but tends to be less demanding and possibly shorter in duration than an internship or service learning.</p> <p><u>INTERNSHIP</u> An internship is a planned, progressive, structured educational activity or program that enables students to practice and develop career-related skills in a real workplace environment. An internship is more complex than job shadowing and mentoring when they are offered as separate programs.</p> <p><u>SERVICE LEARNING</u> Service learning is a community-based form of the work-based learning experience in which students and teachers cooperate with their locality to address problems and issues by applying knowledge and skills from several courses or from a total program.</p>

Revised August 2010