

Poquoson City 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 and Brainbench CADD
Transferable Credits: up to 33 credits



| | Grade | English | Math | Science | S.S. | Required Courses or Recommended Electives and/or CTE Courses | | |
|----------------------|-------|---------|---|---------|------|--|--|--|
| Middle School | 7 | | | | | Technology Education 7 (8464) | | |
| | 8 | | Math 8 Algebra I (3130) Geometry (3141) | | | Technology 8 (8463) | | |

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 Coaching,</i> | 9 | English 9 (1130) or English 9 H (1131) | Algebra I (3130) or Geometry (3143) or Algebra II (3135) | Earth Science (4210) Biology I (4310) | World Geography (2210) | Health & PE9 (7407/7408) and For. Language | <i>(Pathway to remain at HS)</i> Technical Drawing And Design (8435) | <i>(Pathway to include New Horizons)</i> Technical Drawing & Design (8435) | <ul style="list-style-type: none"> Automated Manufacturing Technician Calibration Technician Manager, Supervisor Quality Control Technician Quality Engineer Precision Inspector Production Manager Mechanical Engineering Technician Industrial Engineer Technician Engineering Assistant Project Manager |
| | 10 | English 10 (1140) Or English 10 H (1142) | Geometry (3143) or Algebra II (3135) or Algebra II H (3137) | Biology I (4310) Or Chemistry (4410) | World Studies II (2352) | Health & PE10 (7307/7308) and For. Language | Engineering Drawing & Design (8436) | Engineering Drawing & Design (8436) | |

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|--|------------------|--|--|--|---|------------------|--|---|--|
| | <p>11</p> | <p>English 11 (1150) Or English 11 H (1151) Or AP English 11 (1212)</p> | <p>Geometry (3143) Or Algebra II (3135) Or Trigonometry/Intro to Adv Math (3151) Or Math Analysis (3162) Or AP Statistics (3191)</p> | <p>Chemistry (4410) Or Physics (4510) Or AP Biology (4370) Or AP Chemistry (4422)</p> | <p>US/VA History (2360) Or AP US History (2319)</p> | <p>For. Lang</p> | <p>Advanced Drawing & Design (8438) DRF 211 DE</p> | <p>Advanced Drawing & Design (8438) DRF 211 DE</p> | <ul style="list-style-type: none"> • Drafter • Mechanical Engineer |
| | <p>12</p> | <p>*English 12 (1160) Or AP English 12</p> | <p>Trigonometry/Discrete Math (3150/3154) Or Pre-Calculus (3162) MTH 163-164 DE Or Calculus (3170) Or AP Calculus AB or BC (3177/3179) Or AP Statistics (3191)</p> | <p>Physics (4510) Or AP Chemistry (4422) Or AP Physics (4570)</p> | <p>US/VA Govt. (2440) Or AP Government (2445)</p> | <p>For. Lang</p> | <p>Parametric Solid Modeling DRF 241 DE, DL or at TNCC</p> | <p>Computer Numerical Control (CNC) –NHREC 8540 MAC121,122 DE</p> | |

| Postsecondary Placement Assessments (<i>Reading, Writing, & Math</i>) | | | | | | | | | |
|---|---|---|---|--|---|--|--|--|--|
| 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 | | | | | Future DL classes to be offered | | | |
| | Degree or Major: Mechanical Eng. Tech. | | | | | DE Dual Credit course (HS to CC) | | | |
| | Number of Articulated CC Credits: | | | | | DL Distance Learning AP Advanced Placement | | | |

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> <ul style="list-style-type: none"> 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><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 September 16, 2011