

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Engineering Foundations

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.

Secondary Courses for High School Credit

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| Level 1 | <ul style="list-style-type: none">• Introduction to Engineering Design (PLTW) (1 credit)<ul style="list-style-type: none">• 1835CT; 9-12 grade• 1 semester at Ben Barber• Weighted Credit• Autodesk Certified User: Fusion 360 Certification Possible |
| Level 2 | <ul style="list-style-type: none">• Robotics I (1 credit)<ul style="list-style-type: none">• 1856CT; 9-12 grade• 1 semester at Ben Barber |
| Level 3 | <ul style="list-style-type: none">• Robotics II (1 credit)<ul style="list-style-type: none">• 1858CT; 10-12 grade• 1 semester at Ben Barber• Math Credit• <i>Prerequisite: Robotics I</i>• Principles of Engineering (PLTW) (1 credit)<ul style="list-style-type: none">• 1836CT; 10-12 grade• 1 semester at Ben Barber• Weighted and Science Credit• <i>Prerequisite: Introduction to Engineering AND Algebra I AND Biology AND Geometry (can be concurrent enrollment)</i>• Aerospace Engineering (PLTW) (1 credit)<ul style="list-style-type: none">• 1834CT; 11-12 grade• 1 semester at Ben Barber• Weighted• <i>Prerequisite: Principles of Engineering</i>• Computer Integrated Manufacturing (PLTW) (1 credit)<ul style="list-style-type: none">• 1838CT; 10-12 grade• 1 semester at Ben Barber• Weighted• <i>Prerequisite: Introduction to Engineering</i>• Engineering Design and Development (PLTW) (1 credit)<ul style="list-style-type: none">• 1845CT; 11-12 grade• 1 semester at Ben Barber• Weighted• <i>Prerequisite: Computer Integrated Manufacturing OR Aerospace Engineering</i> |
| Level 4 | <ul style="list-style-type: none">• Practicum in Engineering (2 credits)<ul style="list-style-type: none">• 1857CA/CB; 12 grade• 2 semesters at Ben Barber• <i>Prerequisites: Students must complete a Level 1 or 2 course AND a Level 3 or 4 course to take Practicum in STEM; Selection Process</i>• EduDrone (1 credit)<ul style="list-style-type: none">• 1860CT; 11-12 only• 1 semester at Ben Barber• Science Credit• <i>Prerequisite: Biology, Chemistry or IPC or Physics, AND Driver's License or Permit</i> |



Example Postsecondary Opportunities

Apprenticeships

- Industrial Engineering Technician Apprenticeship

Associate Degrees

- Manufacturing Engineering Technology/Technician
- Robotics Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures

- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)



Example Aligned Occupations

Civil Engineering Technologists and Technicians

Median Wage: \$61,138

Annual Openings: 765

10-Year Growth: 11%

Aerospace Engineers

Median Wage: \$115,694

Annual Openings: 483

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$99,937

Annual Openings: 1,755

10-Year Growth: 19%

