



Engineering

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.



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.

Courses

9th Grade	Principles of Applied Engineering
10th Grade	Engineering Science
11th Grade	Engineering Design and Presentation
12th Grade	Practicum in Engineering

Work-Based Learning/Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Earn industry certification Work on industry projects Work with King Core of Engineers
Expanded Learning Opportunities	SkillsUSA

Aligned Industry-Based Certifications

- Autodesk Associate (Certified User) Inventor for Mechanical Design
- FAA Part 107 Remote Drone Pilot



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/License

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

Example Aligned Occupations

Civil Engineering Technologists and Technicians

Median Wage: \$60,297

Annual Openings: 899

10-Year Growth: 11%

Civil Engineers

Median Wage: \$82,483

Annual Openings: 2,223

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$103,189

Annual Openings: 1,455

10-Year Growth: 19%

Successful completion of this program of study will fulfill requirements of the STEM Endorsement if the math and science requirements are met or the Business & Industry endorsement.

Approved Statewide Program of Study. C. E. King High School – 2026-27



Engineering Foundations Course Information

Level 1

Principles of Applied Engineering

13036200

Grade: 9-10

Credit: 1

Principles of Applied Engineering provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students develop engineering communication skills, which include computer graphics, modeling, and presentations, by using a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will have an understanding of the various fields of engineering and be able to make informed career decisions.

Level 3

Engineering Science (Satisfies a science credit)

13037500

Grade: 10-12

Credit: 1

Prerequisite: Algebra I and Biology, and at least one credit in a course from the Engineering career cluster

Students enrolled in the Engineering Science course explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Students develop skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation.

Engineering Design and Presentation

13036500

Grade: 11-12

Credit: 1

Prerequisite: Algebra I and at least one credit in a course from the Engineering career cluster

Students enrolled in Engineering Design and Presentation demonstrate knowledge and skills of the design process as it applies to engineering fields and project management using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Through implementation of the design process, students transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and learn what is required to gain and maintain employment in these areas.

Industry Based Certifications: Autodesk Associate (Certified User) Inventor for Mechanical Design

Level 4

Practicum in Engineering

12756080

Grade: 12

Credit: 2

Prerequisite: Algebra I AND Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster

Practicum in Engineering is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories. To prepare for careers in engineering, students must attain academic knowledge and skills, acquire technical knowledge and skills related to the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.