Robotics

The Robotics program of study focuses on the occupational and educational opportunities associated with operating or designing an unmanned aircraft using a ground-based controller. This program of study includes understanding and designing systems of communications between the controller and the aircraft to ensure compliance with federal aviation safety regulations.

Courses for High School Credit

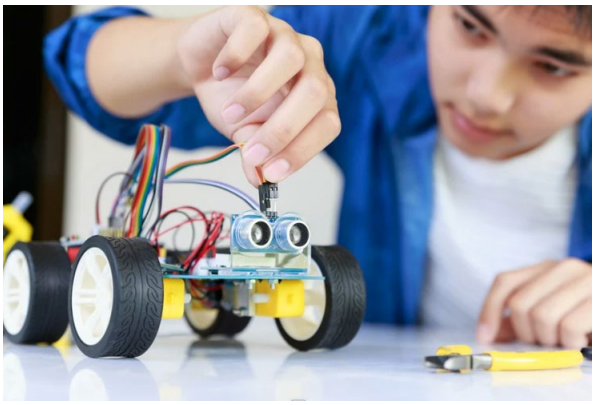
Level 1	• Robotics I
Level 2	• Robotics II
Level 3	• Engineering Science
Level 4	• Digital Electronics

Aligned Industry-Based Certification

- FAA Part 107 Remote Drone Pilot

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	• Intern with a public service, engineering, construction, or transportation firm • Practice drone operations with an industry professional at a work site
Expanded Learning Opportunities	• Participate in an aerial drone competition



Successful completion of the Robotics program of study will fulfill requirements of the Business and Industry endorsement.

Example Postsecondary Opportunities

Associate Degrees

- Airline/Commercial/Professional Pilot and Flight Crew
- Manufacturing Engineering Technology/Technician

Bachelor's Degrees

- Aviation Science
- Aeronautical/Aerospace Engineering Technology

Master's, Doctoral, and Professional Degrees

- Aerospace, Aeronautical, and Astronautical/Space Engineering, General

Additional Stackable IBCs/License

- Aerial Mapping and 3D Modeling Certification

Example Aligned Occupations

(Based on statewide employment data)

Aerospace Engineering and Operations Technicians

Median Wage: $48,204
Annual Openings: 192
10-Year Growth: 21%

Avionics Technicians

Median Wage: $72,461
Annual Openings: 255
10-Year Growth: 16%

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

Robotics Course Descriptions:

Robotics I- ROB1000 (1 Credit)

Level: 1

Course Fee: None

Prerequisite: None

GPA Weight: Regular

In Robotics I, students will transfer academic skills to component designs in a project- based environment through implementation of the design process. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry.

Robotics II- ROB2000 (1 Credit)

Level: 2

Course Fee: None

Prerequisite: Robotics I

GPA Weight: Regular

In Robotics II, students will explore artificial intelligence and programming in the robotic and automation industry. Through implementation of the design process, students will transfer academic skills to component designs in a project-based environment. Students will build prototypes and use software to test their designs. Note: This course satisfies a math credit requirement for students on the Foundation High School Program.

Successful completion of the Robotics program of study will fulfill requirements of the Business and Industry endorsement.

Engineering Science- STE0220H (1 Credit)

Level: 3

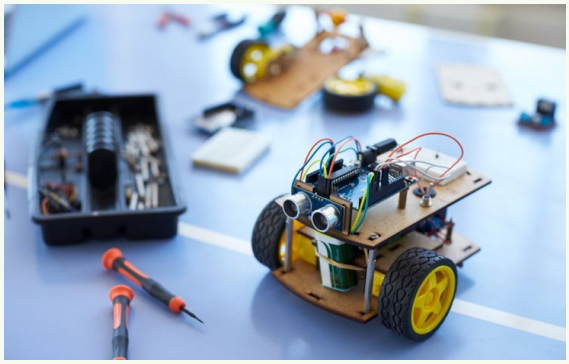
Prerequisite: Algebra I and Biology and 1 credit from the Program of Study

Course Fee: None

GPA Weight: Advanced

Engineering Science is an engineering course designed to expose students to some of the major concepts and technologies that they will encounter in a postsecondary program of study in any engineering domain. Students will have an opportunity to investigate engineering and high-tech careers. In Engineering Science, students will employ science, technology, engineering, and mathematical concepts in the solution of real-world challenge situations. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community.

Note: This course satisfies a science credit requirement for students on the Foundation High School Program.



Digital Electronics- STE3000H (1 Credit)

Level: 4

Prerequisite: Algebra I and Geometry

Course Fee: None

GPA Weight: Advanced

Digital Electronics is the study of electronic circuits that are used to process and control digital signals. In contrast to analog electronics, where information is represented by a continuously varying voltage, digital signals are represented by two discreet voltages or logic levels. This distinction allows for greater signal speed and storage capabilities and has revolutionized the world of electronics. Digital electronics is the foundation of modern electronic devices such as cellular phones, digital audio players, laptop computers, digital cameras, and high-definition televisions. The primary focus of Digital Electronics is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation.

Note: This course satisfies a math credit requirement for students on the Foundation High School Program.

For more information visit:
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