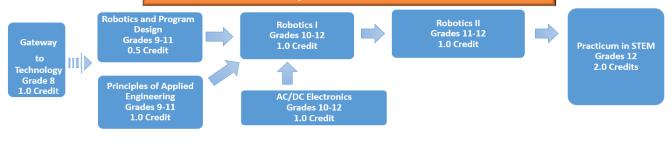
STEM Pathway – Robotics/Electronics



Courses that are inclusive for any Pathway or Endorsement are BIM I, Professional Communications, Touch System Data Entry and Career Preparation

AC/DC ELECTRONICS

KISD #: 963818 PEIMS: 13036800

Grades: 10-12 1.0 Credit Prerequisite: None

AC/DC Electronics focuses on the basic electricity principles of alternating current/direct current (AC/DC) circuits. Students will demonstrate knowledge and applications of circuits, electronic measurement, and electronic implementation. Students will use a variety of computer hardware and software applications to

Recommended Sequence Required Sequence

complete assignments and projects. **Required Fee/Materials:**Yes

GATEWAY TO TECHNOLOGY

*CONCURRENT ENROLLMENT REQUIRED IN:

Semester 1: Design, Modeling and Automation

KISD #: 9487

Grades: 8 0.5 Credit/High School Credit

Semester 2: Applied Science and Technology

KISD #: 9488

Grades: 8 0.5 Credit/High School Credit

Prerequisite: None

Recommended Prerequisite: Strong Math and Science Skills

Design, Modeling and Automation - Students apply the design process to solve problems and understand the influence of creativity and innovation in their lives. They work in teams to design an ankle foot orthosis and toys for children with disabilities, capturing research and ideas in their engineering notebooks. Using design software, students create a virtual image of their designs. Through hands-on projects, students explore electricity, the behavior and parts of atoms, and sensing devices. **Applied Science and Technology** - Students trace the history, development, and influence of automation and robotics as they learn about mechanical systems, energy transfer, machine automation, and computer control systems. Students use a robotics platform to design, build, and program real-world objects such as traffic lights, toll booths, and robotic arms.

Required Fee/Materials: Yes

PRINCIPLES OF APPLIED ENGINEERING

KISD #: 947018 PEIMS: 13036200 Grades: 9-11 1.0 Credit

Recommended Prerequisite: Strong Math Skills

Students will 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. Students will use Autodesk AutoCAD and other related software applications and a variety of computer hardware to complete assignments and projects.

Required Fee/Materials: Yes

ROBOTICS PROGRAMMING AND DESIGN

KISD #: 4932

Grades: 9-11 .5

Students will have opportunities to design, implement, and present solutions which enable robots to perform meaningful tasks to solve real-world problems. Through collaboration, students solve problems through the design, programming and application of robots. Students will identify task requirements, plan search strategies, and use robotic concepts to access, analyze, and evaluate information needed to solve problems. Students will gain an understanding of the principles of robotics through the study of physics, robotics, automation, and engineering design concepts.

Required Fee/Materials: Yes

ROBOTICS I

KISD #: 964118 PEIMS: 13037000 Grades: 10-12 1.0 Credit

Prerequisite: AC/DC Electronics or Principles of

Applied Engineering or Robotics

and Program Design

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.

Required Fee/Materials: Yes

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ROBOTICS II

KISD #: 964218 PEIMS: 13037050

Grades: 11-12 1.0 Credit Prerequisite: Robotics I

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.

Required Fee/Materials: Yes

PRACTICUM IN STEM

KISD #: 936918 PEIMS: 13037400 Grades: 12 2.0 Credits

Prerequisite: Engineering Design & Presentation II

Designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the STEM Career Cluster.

Required Fee/Materials: Yes **Advanced Grade Points:** Yes

Industry Certification: Certified SolidWorks Associate -

Academic

Optional Certification: Autodesk AutoCAD, Autodesk

Inventor, Autodesk Fusion 360

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