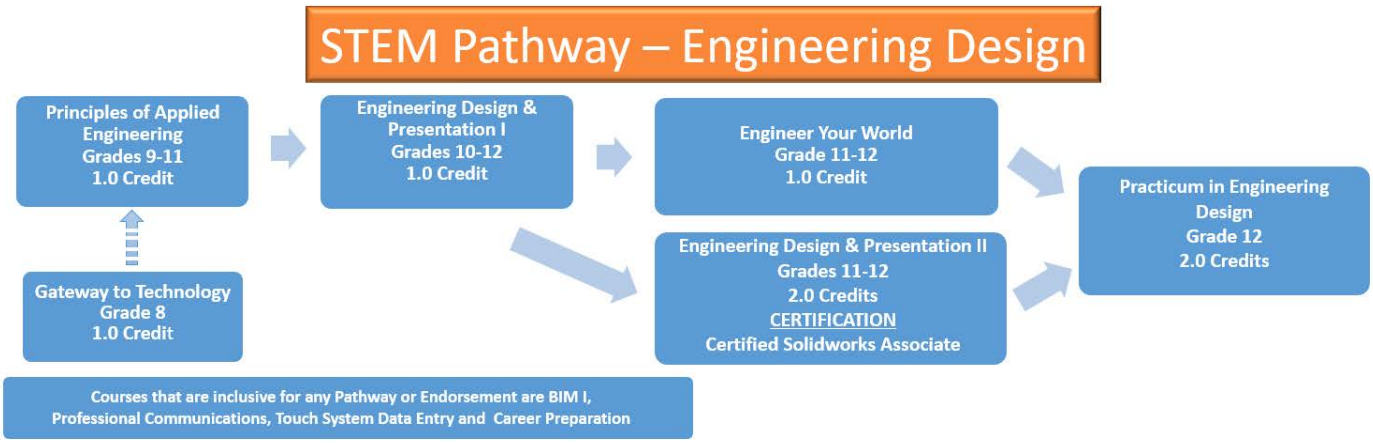
STEM Endorsement



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

This course consists of three units of STEM related content from the Project Lead the Way (PLTW) curriculum. The units to be explored are Design and Modeling, Automation and Robotics and Magic of Electrons. Students work in teams to design orthotics and toys for children with disabilities. Using design software, students create a virtual image of their designs as well as capture research and ideas in an engineering notebook. Through hands-on projects, students explore electricity, the behavior and parts of atoms, and sensing devices. 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

ENGINEERING DESIGN & PRESENTATION I

KISD #: 947418 **PEIMS:** 13036500

Grades: 10-12 **1.0 Credit**

Prerequisite: Principles of Applied Engineering

Students will demonstrate knowledge and skills of the design process as it applies to engineering fields using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students will use a variety of computer hardware and software applications to complete assignments and projects.

Required Fee/Materials: Yes

Optional Certification: Autodesk AutoCAD, Autodesk Inventor

ENGINEERING DESIGN & PRESENTATION II

KISD #: 936818 **PEIMS:** 13036500

Grades: 11-12 **2.0 Credits**

Prerequisite: Engineering Design and Presentation I

Students will design complex and detailed products and prototypes related to various categories of engineering. This course will be conducted in a classroom/laboratory setting. Student may also complete training for additional industry certifications.

Required Fee/Materials: Yes

Industry Certification: Certified SolidWorks Associate - Academic

Optional Certification: Autodesk AutoCAD, Autodesk Inventor, Autodesk Fusion 360

ENGINEER YOUR WORLD

KISD #: 949018 **PEIMS:** N1303752
Grades: 11-12 **1.0 Credit**
Prerequisite: Engineering Design and Presentation I

Developed by a team of University of Texas faculty and NASA engineers, Engineer Your World engages students in authentic engineering practices in a project-based environment. Students complete a series of socially relevant design challenges to develop engineering design skills and habits of mind. This course covers the breadth of engineering fields and professions so that students can make informed decisions about pursuing engineering.

Required Fee/Materials: Yes
Advanced Grade Points: Yes

PRACTICUM IN ENGINEERING DESIGN

KISD #: 936918 **PEIMS:** 13037400
Grades: 12 **2.0 Credits**
Prerequisite: Engineering Design and 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