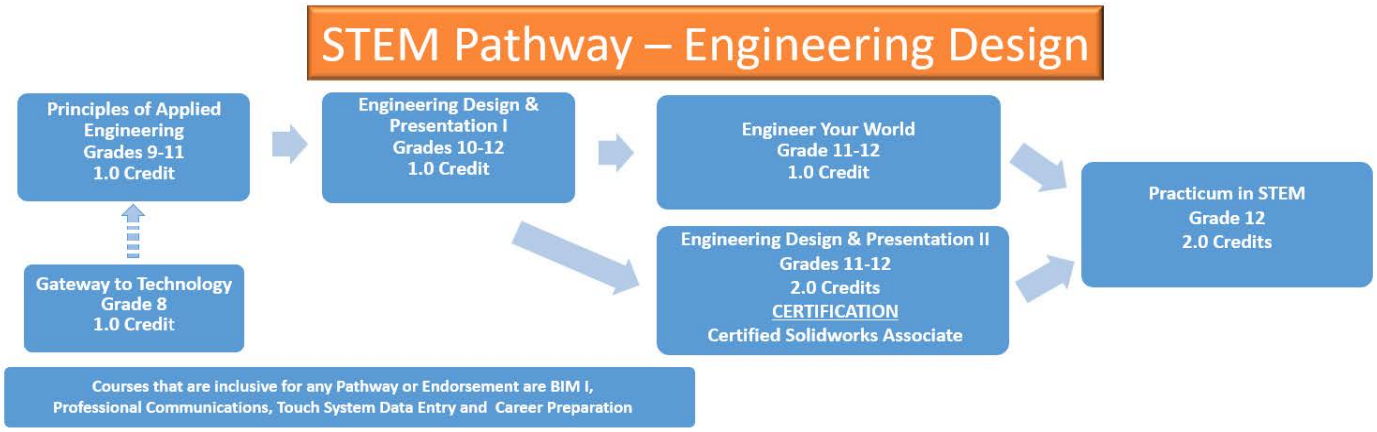
STEM Endorsement



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**

Design, Modeling and Automation - Students apply the design process to solve problems and understand the influence of creativity and innovation in their lives. Students collaborate to design an ankle foot orthosis and toys for children with disabilities, while 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

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 demonstrate knowledge and skills of the design process as it applies to engineering fields using multiple software applications and tools necessary to prototypes. Students will use a variety of computer hardware, such as laser engravers and CNC machines, and software applications to complete assignments and projects.

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 STEM

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