

# Engineering Pathway

Earn the STEM endorsement by completing four credits within the CTE STEM Cluster, including one advanced course, as noted by (ADV)

## Introduction to Engineering Design (IED)

Course ID: CST51 A&B/N1303742  
Credit: 1.0

Study the engineering design process through activities, problems, and projects including engineering notebooks, prototyping, technical sketching, measurement and statistics, 3D computer solid modeling, and reverse engineering.

- Prerequisite for all PLTW courses.



## Engineering Science/Principles of Engineering \*

Course ID: CST52 A&B/13037500  
Credit: 1.0

Study mechanisms, energy, statics, materials, kinematics, and computer control systems. Explore problem-solving skills and apply your knowledge of math, science, and design to create solutions to various challenges, document your work, and communicate solutions.

- PR: IED, completion/concurrent enrollment of Algebra II

Choose 1 Course

## Aerospace Engineering

Course ID: CST71 A&B/N1303745  
Credit: 1.0

Learn about development of new technologies for use in aviation, defense systems, and space exploration. Explore the evolution of flight, flight fundamentals, navigation and control, aerospace materials, propulsion space travel, orbital mechanics, ergonomics, remotely operated systems and related careers.

- PR: IED

## Civil Engineering

Course ID: CST55 A&B/N1303747  
Credit: 1.0

Learn about the design, construction, maintenance, and coordination of built structures and environments such as roads, highways, bridges, canals, dams, and some commercial and residential buildings. Explore both residential and commercial civil engineering projects using 3D CAD software.

- PR: IED

## Computer Integrated Manufacturing

Course ID: CST57 A&B/N1303748  
Credit: 1.0

Learn about modern manufacturing equipment and methods through exploration of robotics and automation, computer modeling, rapid prototyping, CNC programming, and flexible manufacturing systems.

- PR: IED

## Digital Electronics \*\*

Course ID: CST53 A&B/13037600  
Credit: 1.0

Learn about electronic circuits used to process and control digital signals, the design process applied to the use of combinational and sequential logic, teamwork, engineering standards, and technical documentation. Analyze, design and build fundamental digital electronic circuits.

- PR: IED, Algebra I & Geometry

## Engineering Design and Development \* (ADV)

Course ID: CST58 A&B/  
N1303749  
Credit: 1.0

Capstone course working in student teams to design and develop an original solution to a valid open-ended technical problem by applying the engineering design process.

- PR: IED

OR

## Engineering Internship (ADV)

Course ID: CPG81 A&B/  
12701300  
Credit: 2.0

Participate in a supervised practical application of STEM Engineering through classroom learning and a paid or unpaid work experience. Acquire employability skills and experience for pursuit of career opportunities in STEM fields.

### Pathway Notes:

- \* Satisfies a high school Science graduation requirement
- \*\* Satisfies a high school Mathematics graduation requirement
- Pathway available at MHS, SWHS and SHS. Verify specific course availability with campus Counselor.
- SBISD partners with Project Lead The Way (PLTW) for course design, curriculum and teacher professional development

### Certification Available:

AutoDesk Inventor