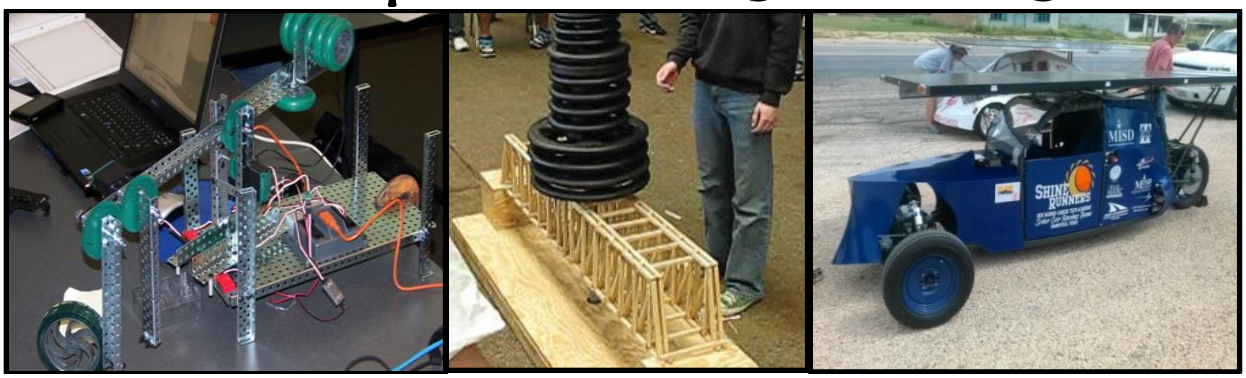
POS: Science, Technology, Engineering & Mathematics | Endorsement: STEM

Principles of Engineering



Prerequisite: Geometry AND Chemistry OR IPC AND Intro to Engineering Design
Course: 1836CT Credits: 1 Length: 18 weeks Placement: 9-12

Course Description

This course explores the wide variety of careers in engineering and technology and covers various technology systems and manufacturing processes. Using activities, projects, and problems, students learn firsthand how engineers and technicians use math, science, and technology in an engineering problem-solving process to benefit people. **Course can be used as an additional science credit for graduation. Students can earn weighted credit for this course.**

Student Activities

Overview and Perspective of Engineering: Students learn about the types of engineers and their contribution to society.
Communication and Documentation: Students collect and categorize data, and produce graphics
Design Process: Students learn about problem solving and how products are developed, including how engineers work in teams. Students will be required to create graphical representations, keep an engineer's notebook, and make written and oral presentations.
Engineering Systems: Students learn about mechanical, thermodynamics, fluid, electrical, and control systems.
Statics: Students learn about measurement, scalars and vectors, equilibrium, structural analysis, and strength of materials.
Materials and Materials Testing: Students learn the categories and properties of materials, including how materials are shaped and joined, and materials testing.
Engineering for Quality and Reliability: Students will use precision measurement tools to gather and apply statistics for quality and process control. Students will also learn about reliability, redundancy, risk analysis, factors of safety, and liability and ethics.
Dynamics: Students will be introduced to dynamics/kinematics.

Organizations/After School/Competitions

Shine Runners Solar Car Racing Team, FTC Robotics, Technology Student Association

Additional Considerations

Students must have successfully completed Geometry without modification. Cannot modify curriculum.