

DEPARTMENT: SCIENCE

**NAME OF COURSE: DRAWING AND DESIGN FOR PRODUCTION:
INTRODUCTION TO ENGINEERING DESIGN (IED)**

GENERAL DESCRIPTION OF COURSE

Introduction to Engineering Design(IED) is a high school level course that is appropriate for students who are interested in design and engineering. The major focus of the IED course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. IED gives students the opportunity to develop skills and understanding of course concepts through activity, project, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB-learning challenges students to continually hone their interpersonal skills, creative abilities and understanding of the design process. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

The course assumes no previous knowledge, but students should be concurrently enrolled in college preparatory mathematics and science. Students will employ engineering and scientific concepts in the solution of engineering design problems. In addition, students use a state of the 3D solid modeling design software package to help them design solutions to solve proposed problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course.

Introduction to Engineering Design is a foundation course in the Project Lead The Way high school pre-engineering program. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

The course of study includes:

- Design Process
- Modeling
- Sketching
- Measurement, Statistics, and Applied Geometry
- Presentation Design and Delivery
- Engineering Drawing Standards
- CAD Solid Modeling
- Reverse Engineering
- Consumer Product Design Innovation
- Marketing
- Graphic Design
- Engineering Ethics
- Virtual Design Teams

TEXTBOOKS - None

REQUIREMENTS

Lessons will require both independent and group work, using the latest in drafting technology. Students will be required to use CAD software extensively during the course of this program. Work is submitted both electronically and hard-copy.

Students will also learn how to document their work, and communicate their solutions to their peers and members of the professional community.

GRADING PROCEDURES

Grades are determined by a combination of projects, reports, drawings, performance of students' designs, etc., in addition to traditional exams, quizzes and homework.