
PETERS TOWNSHIP HIGH SCHOOL

COURSE SYLLABUS: ENGINEERING GRAPHICS

Course Overview and Essential Skills

This course will provide the prospective engineering student with basic drawing techniques and concepts including: geometric construction, sketching, multi-view and pictorial drawing, and dimensioning. Students will be introduced to design equipment including computer aided design (CAD) programs. The course will culminate with engineering problem-solving activities selected to enable the students to apply knowledge learned throughout the semester.

Course Textbook and Required Materials

- Teacher generated materials.
- SolidWorks 2012
- Computer Lab

Course Outline of Material Covered:

Unit or Topic	Concepts/Skills/Resources	Timeframe
TECHNICAL SKETCHING	• discuss the importance of placing ideas on paper by means of technical sketches • sketch various lines and geometric shapes • participate in activities designed to produce finished engineering sketches	ONE WEEK
TOOLS AND TECHNIQUES OF DRAFTING	• identify the basic drafting tools used by engineers • explain how to lay out drawings to scale • select the appropriate drafting paper • develop appropriate lettering techniques for engineering drawings • use the standard line symbols for engineering drawings	TWO WEEKS
COMPUTER AIDED DESIGN AND ENGINEERING	• explain the advantages of using computers in design and engineering • list the purpose of each component in the CAD system • investigate the CAD functions and demonstrate the use of each	ONE WEEK

	demonstrate the various ways to produce a drawing using CAD	
GEOMETRIC FIGURES AND CONSTRUCTIONS	- explain the importance of geometry in engineering design - layout two dimensional shapes - recognize the basic geometric solids - perform the basic geometric construction - locate tangent points on geometric figures - apply CADD applications to construct geometric figures	TWO WEEKS
MULTI-VIEW DRAWING	- apply the principles of orthographic projection - layout multi-view drawings - apply the CADD system to generate multi-view drawings	THREE WEEKS
DIMENSIONING	- differentiate between the various ANSI dimensioning techniques - demonstrate how parametric dimensions drive the geometry of a drawing - apply both size and location dimensions to a drawing using appropriate dimensioning standards - dimension a drawing using CADD application	TWO WEEKS
PICTORIAL DRAWING	- list and describe the three types of pictorial drawings - complete an oblique, isometric, and perspective drawing - dimension a pictorial drawing - generate pictorial drawings using CAD applications	THREE WEEKS
APPLICATION OF ENGINEERING ACTIVITIES	- use critical thinking and problem solving techniques to solve an engineering problem - utilize the knowledge and skills learned throughout the course to design a problem	THREE WEEKS

	• solution • build and test a design solution to a given engineering problem	
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****Depending on the needs of the class or changes in the school year, the course outline is subject to change.***