
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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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

	<ul style="list-style-type: none"> demonstrate the various ways to produce a drawing using CAD 	
GEOMETRIC FIGURES AND CONSTRUCTIONS	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> apply the principles of orthographic projection layout multi-view drawings apply the CADD system to generate multi-view drawings 	THREE WEEKS
DIMENSIONING	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

	<ul style="list-style-type: none">• 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.*