

Engineering Design and Systems Thinking

100130 - Course Syllabus

LEXINGTON HIGH SCHOOL

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Course Content

This course is designed for students who want some understanding of the drafting industry and how it works. Every student will be provided with an equal opportunity to learn and be successful in this course. Assessment will be performed through a series of hands on activities along with written work. Technology utilized: personal computers will be utilized from time to time in this course but should not be out unless the class is specifically asked to do something on them. AutoCAD 2013 software and computers are available to the class. All students spend a significant amount of time learning and applying AutoCAD drafting. Other drafting programs may be introduced but not mastered.

Design

Topics include methods of creating and presenting design concepts with thumbnails and freehand drawing proposal rendering of perspective and orthographic plans. Original thinking, invention, problem finding, problem solving, visualization, designing, finished working drawings and presentation drawings will be practiced. Project design involves discussion of goals within the design team, and with clients, fabricators, and users.

Manual Drafting

Students will be introduced to the production of lettering, notation, descriptive geometry, dimensioning, drawing sheet layout, and other standard drafting procedures. Perspective rendering, using freehand visualization, is practiced for use in idea development and end product illustration. Students learn conversion from isometric (a single-angle-view) to orthographic (two or more straight views) and from orthographic to isometric visualization and perspective rendering.

Evaluation

Work must be completed in the classroom. Because of the cost of materials and programs for this type of class students will not have access to the materials needed outside of the scheduled class times. Students are expected to be present and to stay on task when in class. Grading is based on drafting performance, and the quality of design work. Accuracy and drawing speed are assessed. Individual drawings will be evaluated for correctness of information and appearance of the work. Assignments will receive better grades if they are on time and penalized if they are late. Quarters will be of equal weight for the semester grade and there will be a final drawing at the end of each semester that will constitute 10% of the total semester grade.

Classroom Expectations

Students should be familiar with the behavior guidelines listed in the Lexington High School student handbook. Students are expected to:

- Put forth their best effort each and every class period**
- Come to class prepared to learn**
- Be cooperative with their peers & treat others with respect**
- Participate in class discussions**
- Turn in work on time**
- Sign and abide by the LHS technology contract**
- Refrain from having food, beverage, and cell phones in the classroom**

Students are responsible for maintaining their assigned workstation and are to report any problems or if any damage is noticed, immediately.

