ENGR 1012: Engineering Graphics

This course is required for all Engineering majors.

Course Coordinator:
Rick Williams

Catalog Description:
Engineering graphics in a professional engineering context including sketching, working drawings, multiviews, solid modeling software, drawing standards, tolerancing and dimensioning.

Course Structure:
One 50-minute lecture and one two-hour laboratory/recitation session per week (two credits)

Prerequisites:
None.

Required Materials:

1. *Introduction to Solid Modeling Using SolidWorks® 2007,* W.E. Howard and J.C. Musto, McGraw Hill, 2008. ISBN 978-0-07-337532-8.
2. *2007 SolidWorks Student Design Kit,* packaged with Howard and Musto textbook.
3. *Engineering Graphics: Theory and Problems, 2nd Edition with Workbook Problem Set A,* T.J. Sexton, SDC Publications, 2006. ISBN 978-1-58503-340-9.

Course Objectives:

Upon completion of this course, students shall be able to:

- Apply engineering graphics as a communications tool
- Describe how graphic models and other modern tools are used in the engineering design process
- Create part models with solid modeling software
- Create sketches, by hand and with CAD software, incorporating multiple views, auxiliary views, and section views
- Create assembly models and assembly drawings with solid modeling software
- Apply standard dimensioning and tolerancing practices
- Describe the skills required to develop engineering working drawings

Lecture Topics:

- Engineering graphics in the design process and as a technical communications tool (1 class)
- Sketching (1 class)
- Multiview Sketches (2 classes)
- Isometric Sketches (2 classes)
- Auxiliary View Sketches (1 class)
- Section View Sketches (1 class)
- Dimensioning (2 classes)
- Working Drawings (2 classes)
- Geometric dimensioning and tolerancing (2 classes)

Laboratory/Recitation Topics:
Laboratory Topics:

- Introduction to SolidWorks
- Part Modeling
- Sketching
- Parametric Modeling (2 sessions)
- Advanced Part Modeling
- Drawings
- Assemblies
- Assembly Drawings
- 2 D Layouts
- Vectors

Recitation Topics:

- Exams and Review

Relevant Program Outcomes:
Graduates of the Engineering Program will demonstrate
g) an ability to communicate effectively.
k) Graduates of the Engineering Program will demonstrate an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Professional Component Content:
Math/Science: 0; Engineering: 2 credits; General Education: 0

Assessment Requirements:
Student Work Samples:

- SolidWorks Portfolio (Outcome k)

Student Course Survey

Last Review:
December 18, 2007 by Rick Williams