Course | ME 16000 – Solid Modeling
---|---
Type of Course | Required for ME program
Catalog Description | Communication of form and layout of real world objects, solid modeling of objects. Engineering drawing layouts, orthogonal projections, dimensioning, tolerancing and standard drawing symbols, principles of detail design drawings and assembly drawings, and manufacturability. Use of computer graphics and production of drawings.
Credits | Lecture 1; Lab 1
Contact Hours | 3
Prerequisite Courses | MA 16500
Corequisite Courses | ENGR 12800
Prerequisites by Topics | Computer drawing, computer graphics, constraining and dimensioning sketches, design variables and equations, coordinates, vectors, matrices, projections, views and visualizations, computer aided design, engineering design and analysis, product development, graphic user interface
Course Objectives | The course objectives are an introduction of the solid modeling method and its integrated applications through the use of SolidWorks and engineering related graphical exercises. Students are prepared to identify design intentions, create and modify part or assembly models productively. It will provide you with the essential skills to use a solid model for advanced engineering design.
Course Outcomes | Students who successfully complete this course will have demonstrated an ability to:
1. Select an appropriate CAD tool for various applications. (6)
2. Use basic/advanced skills for 3-D part modeling, create solid 3-D model of a part for design concept. (1,2)
3. Use basic/advanced skills for 3-D assembly modeling. (1,2)
4. Create dimensioned drawings and views from a 3-D model. (1,2,4)
5. Communicate important aspects of a solid modeling orally and in writing. (4,7)
6. Use a solid model for motion, simulation, or manufacturing. (1,2)

Lecture Topics
1. Fundamentals of solid modeling
2. Engineering drawings
3. Basic and advanced part modeling technique
4. Basic and advanced assembly modeling technique
5. Motion simulation of mechanisms
6. Solid models for finite element analysis
7. Solid models for product life-cycle management

Computer Usage
High

Laboratory Experience
Medium

Design Experience
Medium

Coordinator
Zhuming Bi, Ph.D.

Date
March 26, 2018