PURDUE UNIVERSITY FORT WAYNE | Department of Civil and Mechanical Engineering

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 detain 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
Textbook	*Introduction to Solid Modeling Using SolidWorks*, Howard and Musto McGraw Hill Higher Education, current edition.
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.

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