

ME588: Assembly Modeling for Design and Manufacturing

Fall 2008 Course Syllabus

Synopsis

Product realization starts with assembly as the product, and ends with assembly as the manufacturing process. This course will cover various modeling and designing approaches for assembled products and assembly systems, including assembly representation, constraint modeling, variation analysis, assembly sequence analysis, and assembly systems modeling.

Prerequisites

- Course in manufacturing processes (eg. ME 381)
- Knowledge on statistics (eg., ME401)

Textbooks

None. Course pack is available at Dollar Bill Copying

Lectures

Tuesdays and Thursdays at 1:30 - 3:00pm in 151 Chrysler Center.

Instructor

Prof. Kazuhiro Saitou

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Office hours: Mondays 2:00-3:30pm

Grading

- Homeworks 25%
- Exam 1 25%
- Exam 2 25%
- Project 25%

The Honor Code is in effect for homeworks, exams, and project. Unless otherwise indicated/announced, all homeworks and reports are due at the beginning of the class on their due dates.

Homeworks

Homeworks consist of written problems and computer assignments. Computer assignments include simple programming in MATLAB. While it is acceptable, and often helpful, to discuss basic strategies for some problems, all work must be completed individually.

Project

The course project emphasizes the application of the course material to a product of your choice. It should be by a team of 3-4 students. The project requires a proposal (2%), a progress report (8%), an oral presentation (5%), and a final report (10%). Members of a team will receive same grades for the proposal, reports and final presentation. Details of the project deliverables will be provided separately.

Schedule (subject to change)

Lec #	On-campus date	topic	Reading	Hw/project due
1	09/02/08	Introduction, course overview		
2	09/04/08	Key Characteristics	Whitney, Chap 2	
3	09/09/08	Assembly representation	Whitney, Chap 3	
4	09/11/08	Assembly representation		
5	09/16/08	Constraint modeling	Whitney, Chap 4	HW#1
6	09/18/08	Constraint modeling		
7	09/23/08	Constraint modeling		
8	09/25/08	Tolerance modeling	Whitney, Chap 5	Proposal
9	09/30/08	Variation analysis	Whitney, Chap 6	
10	10/02/08	Variation analysis		
11	10/07/08	Assembly sequence analysis	Whitney, Chap 7	HW#2
12	10/09/08	Assembly sequence analysis		
13	10/14/08	Design for assembly guidelines		
14	10/16/08	Review		HW#3
15	10/21/08	Fall study break (no class)		
16	10/23/08	Exam 1	Whitney, Chap 8	
17	10/28/08	Datum Flow Chain		
18	10/30/08	Datum Flow Chain		Progress report
19	11/04/08	Product architecture	Whitney, Chap 14	
20	11/06/08	Manual assembly lines	Groover, Chap 15	
21	11/11/08	Manual assembly lines		HW#4
22	11/13/08	Automatic assembly lines	Groover, Chap 16	
23	11/18/08	Automatic assembly lines		
24	11/20/08	Review		HW#5
25	11/25/08	Exam 2		
26	11/27/08	Thanksgiving		
27	12/02/08	Project work (no class)		
28	12/04/08	Project presentation		
29	12/09/08	Project presentation		Final report