

ME1038 – Design for Manufacturing and Performance
Fall 2004, MWF 9 – 9:50 am (820 BEH)

Instructor:

Dr. H.Y. Shadow Huang
534 Benedum Hall
Phone: 624-3091
E-mail: shuang@engr.pitt.edu
Office hours: M 1:30 - 3:30 pm
 T 4:00 - 6:00 pm
 F 11:00 am - 1:00 pm

Texts:

Introduction to Manufacturing Processes, by John A. Schey, Third Edition, McGraw Hill, 2000

References:

Product Design for Assembly, by George Boothroyd, Peter Dewhurst and Winston Knight, Marcel Dekker, Inc., 1987.

Homework:

Assigned and collected periodically.
Assignments are due 9 am every Wednesday before class. No late homework will be accepted.

Individual Paper:

Students will prepare a paper on some aspect of global manufacturing.

DFA Problem:

Students will complete a Design for Assembly problem.

In class quizzes:

In class quizzes are assigned periodically.

Team Project:

Students will work in teams to complete a design for manufacturing project. The output will be a poster and a report describing the results of the project. Further details will be provided.

Final:

The final examination will be on Wednesday, December 15th, from 10:00 to 11:50 am.

Attendance Policy: Attendance of classes is mandatory. Students who are regularly absent from class will not be included in any adjustment (curving) of the final grades. If a student has a valid excuse for missing a class, they must inform the instructor beforehand.

Cellular phones must be turned OFF during class/lab. Repeated disruptions will count as absences.

Prerequisites:

ENGR0022: Material Structure and Properties

ME 1041: Mechanical Measurement 1

ME 1029: Mechanical Design II

ME1052: Heat Transfer

ME1072: Applied Fluid Dynamics

Grading:

Semester grades will be computed as follows:

Homework	25%
Global Mfg. paper	10%
DFA problems	10%
In class quizzes	10%
Team project	25%
Final	20%
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Total	100%

ACADEMIC HONESTY

Academic honesty means performing all academic work without plagiarism, cheating, lying, tampering, stealing, receiving unauthorized or illegitimate assistance from any other person, or using any source of information that is not common knowledge.

DEPARTMENTAL GRADING POLICY REGARDING COMMUNICATION SKILLS

Thirty percent of the grade on all written assignments (reports / papers) will be based on quality of communication. Spelling, grammar, punctuation, and clarity of writing are evidence of written communication quality.

Week	Lecture	Date		Subject	Note
	1	August 30, 2004	Monday	Introduction	General
1	2	September 1, 2004	Wednesday	Process of Eng. Design / Drawing	
	3	September 3, 2004	Friday	Tolerance, CAM	
		September 6, 2004	Monday	NO Class	
2	4	September 8, 2004	Wednesday	DNC: CNC, NC	
	5	September 10, 2004	Friday	Metal: structure, imperfections	Material
	6	September 13, 2004	Monday	Metal: mechanical testing, Hardness test	
3	7	September 15, 2004	Wednesday	Material: Plastic/ polymer	
	8	September 17, 2004	Friday	Materials: Ceramics and composites	
	9	September 20, 2004	Monday	Test 1	
4	10	September 22, 2004	Wednesday	Casting: general	Casting
	11	September 24, 2004	Friday	Casting: solidification	
	12	September 27, 2004	Monday	Casting: Design	
5	13	September 29, 2004	Wednesday	Casting: process	
	14	October 1, 2004	Friday	Casting: process	
	15	October 4, 2004	Monday	Rolling	Forming and shaping
6	16	October 6, 2004	Wednesday	Forging	
	17	October 8, 2004	Friday	Forging	
	18	October 11, 2004	Monday	Extrusion	
7	19	October 13, 2004	Wednesday	Extrusion	
	20	October 15, 2004	Friday	Drawing	
	21	October 18, 2004	Monday	Sheet metal forming: Cutting	
8	22	October 20, 2004	Wednesday	Sheet metal forming: Bending	
	23	October 22, 2004	Friday	Sheet metal forming: Deep Drawing	
	24	October 25, 2004	Monday	Spining, tube soining, rubber forming	
9	25	October 27, 2004	Wednesday	Test 2	DFA
	26	October 29, 2004	Friday	DFA	
	27	November 1, 2004	Monday	DFA	
10	28	November 3, 2004	Wednesday	DFA: Qualitative	
	29	November 5, 2004	Friday	Assemble: Fastening	Welding
	30	November 8, 2004	Monday	Arc Welding	
11	31	November 10, 2004	Wednesday	Resistance Welding	
	32	November 12, 2004	Friday	Class Cancel	
	33	November 15, 2004	Monday	Oxyful Welding & Solid State Welding	
12	34	November 17, 2004	Wednesday	Formation of chips	Machining
	35	November 19, 2004	Friday	Formation of chips	
	36	November 22, 2004	Monday	Cutting, tool life	Thanksgiving break
13		November 24, 2004	Wednesday	NO Class	
		November 26, 2004	Friday	NO Class	
	37	November 29, 2004	Monday	Turning, Drilling	Cutting, Removal
14	38	December 1, 2004	Wednesday	Milling	
	39	December 3, 2004	Friday	Machiniability, surface roughness	
	40	December 6, 2004	Monday	Tribology	Surface finish
15	41	December 8, 2004	Wednesday	Quality	
	42	December 10, 2004	Friday	Review	