

**ME 666 –Manufacturing with Materials.
Fall Semester 2001**

ME 666: Manufacturing with Materials (Credits 3). This course gives information about manufacturing processes and underlying principles. Prerequisites: ME 250 or Departmental Consent.

Textbook: Introduction to Manufacturing Processes, John A. Schey, McGraw Hill, 2000

References: Modern Manufacturing Process Engineering, B. W. Niebel, A. B. Draper, R. A. Wysk, McGraw Hill, 1999

Coordinator: G.E. Talia, Full Professor of Mechanical Engineering.

Course Objectives: This course is designed to give students a basic understanding and knowledge of principles that can be used to understand and improve existing manufacturing processes and create new ones. Students were expected to gain or show that they possessed

1. A basic understanding of manufacturing processes.
2. An ability to apply the knowledge of mathematics, science and engineering.
3. An ability to solve engineering problems.
4. An ability to improve existing manufacturing processes.
5. An ability to communicate effectively and work in a group.
6. An ability to use techniques, skills and modern engineering tools necessary for engineering practice.

Notes:

1. Homework problems will be assigned during the course. A one week time will be given to do the homework.
2. Partial credit is not guaranteed.
3. Reading assignments include the text + course notes + handouts.
4. Incomplete (I) grades will not be given (except for medical reasons).
5. All reports and homeworks should be given to the instructor before or during the class of the due day. Late work or work given to a second party will not be accepted.
6. Whining is not allowed.
7. A written open ended project on material selection (selected by the student and approved by the instructor) and presentation of that project using transparencies or slides is required. All the

reference materials should be attached to the project. The project will be graded on reference materials, write up and presentation.

8. The course will be taught in a combination of lecture, group discussion and questions-answers. This will aid a better understanding and retention of the subject matter.

9. Grading:

HOMEWORK (10)	10
TESTS (3)	60
DESIGN PROJ.	30

10. Final Grade *

over/or % 90	A
less than 90 % but over/or % 80	B
less than 80 % but over/or % 70	C
less than 70 % but over/or % 60	D
less than 60 %	F

(*) The instructor reserves the right to improve/deduct a student's final grade by a grade for exceptional participation/lack of preparation.

11. Office Hrs.

T. and Th. 3:00 - 4:00 or by app.

ME 250 MATERIALS ENGINEERING

Written Report Notes

These notes are intended to supplement the information contained in "A Student Guide to Engineering Report Writing" and describe some important items expected in your reports. The basic format for the reports is that specified by Brown in Chapter 4. There are, however, a few differences that are described below. The reports should contain:

Title Page with experiment title, group members names, date and location of the experiment, and submission date of report.

Abstract

Nomenclature with list of all variables and symbols used in report.

- I. Introduction with summary of purpose, background, and method of experiment.
- II. Theory review of applicable background theory, derivation or citing of mathematical relations used in experimental analysis.
- III. Test Procedure and Equipment description of the equipment and procedure used in the experiment, typically with supporting sketch, to give reader a clear idea of how experiment was performed.
- IV. Results and Discussion quantitative description of results of experiment that are also presented in graphical or tabular form as appropriate. Note that all figures and graphs should be referred to in this narrative presentation of results. This section should also include quantitative evaluation of at least two sources of error that contribute to the differences between theory and experimental results.
- V. Conclusions review of stated purpose and method of experiment and discussion of how experiment satisfied or did not satisfy its goals. A quantitative summary of the experimental results should be included. Recommendations for improvements to the experiment may also be included.
- VI. References (Attach all the references)
- VII. Appendices for extensive derivations, sample data reduction, tables of results to "unclutter" the body of the report.

ME 250 MATERIALS ENGINEERING

Written Report Grading Break-down

Name/s: _____

- 1. Overall Organization and Neatness (5 points) _____
- 2. Introduction (10 points) _____
- 3. Procedure and Equipment (10 points) _____
- 4. Results (30 points) _____
- 5. Discussion (30 points) _____
- 6. Conclusions (10 points) _____
- 7. Figures and Appendices (5 points) _____

TOTAL

Comments:

Syllabus

Class #	Date	Topic	Chapt.	Assignment
1.	08-21	Introduction	1	
2.	08-23	Manufacturing	2	
3.	08-28	Geometric and Service Attributes	3, 4	
4.	08-30	Materials In Design & Treatments	5, 6	
5.	09-04	Metal Casting	7	
6.	09-06	" "		HW 1 (Problems in Chapt. 1-6)
7.	09-11	" "		
8.	09-13	Plastic Deformation	8	HW 2 (Problems in Chapt. 7)
9.	09-18	" "		
10.	09-20	Bulk deformation processes	9	
11.	09-25	" "		HW 3 (Problems in Chapt. 8)
12.	09-27	Test I on Chapters 7-9		
13.	10-02	Sheet Metal Working	10	
14.	10-04	" "		HW 4 (Problems in Chapt. 9)
15.	10-09	Powder metallurgy	11	
16.	10-11	" "		HW 5 (Problems in Chapt. 10)
17.	10-16	" "		
18.	10-18	Processing of Ceramics.	12	HW 6 (Problems in Chapt. 11)
19.	10-23	" "		
20.	10-25	Test II on Chapters 10 - 12		
21.	10-30	Processing of plastics.	13, 14	
22.	11-01	" "		HW 7 (Problems in Chapt. 12)
23.	11-06	" "		
24.	11-08	Composites	15	HW 8 (Problems in Chapt. 13,14)
25.	11-13	" "		
26.	11-15	Machining	16	HW 9 (Problems in Chapt. 15)
27.	11-20	" "		
28.	11-27	" "		HW 10 (Problems in Chapt. 16)
29.	11-29	Test III on chapters 13 – 16		

30.	12-04	Presentation of projects	Project due
31.	12-06	" "	