

ME 326 MATERIALS SCIENCE
MWF 12:20 P.M. - 1:10 P.M.

INSTRUCTOR:

Dr. Jan Gou

Office hours: MW, 11:00 a.m. - 12:00 a.m., R, 3:00 p.m. - 4:00 p.m. also by appointment

PREREQUISITE:

PH 202 Calculus-Based Physics II

TEXTBOOK

Materials Science and Engineering: An Introduction, by William D. Callister, Jr., 7th Edition, John Wiley & Sons

COURSE CONTENT

Mechanical, chemical, and physical properties of materials. Relationship between structure, processing, and properties of engineering materials.

COURSE OBJECTIVES

1. Use the Periodic Table to explain concepts of oxidation-reduction, oxidation number, bonding and bond strength, and ionization potential.
2. Select the appropriate mechanical properties for design under various loading situations, such as quasi-static, cyclic, impact, and low and elevated temperatures.
3. Apply the principles of diffusion to design a process for surface hardening.
4. Apply Cooling Curve and the Lever Law to demonstrate Phase Transition and Phase Analysis.
5. Use the characteristics of various grades of steel in design and failure analysis.
6. Design a production procedure for mechanical and/or thermal processing.
7. Select the appropriate engineering material and dimension for a given application.

GRADING POLICY

Class Attendance	10%
Homework	25%
Two Term Exams	40%
Final Exam	25%
Total	100%

COURSE GRADE: A (90-100); B (80-89); C (70-79); D (60-69); F (< 60)

FINAL EXAM: 1:00 p.m. - 3:00 p.m., Monday, April 30, 2007

CLASSROOM POLICY

1. At least 70% of homework assignments must be submitted to receive a passing grade. Homework assignments will be announced in class and they are due at the beginning of the class period on the due day. Late work will be graded for 80% credit if submitted on the class day following the “due” date. After that, no grade will be given. Neatness will count and messy, unorganized problems will result in reduced credit.
2. There will be two term exams plus a comprehensive final exam. Sketches and all solutions must be shown clearly and neatly in your exam papers. All examinations missed due to illness or emergency require a written, verified excuse or a grade of zero will be assigned.
3. Class attendance is necessary for satisfactory performance. There will be a sign-up sheet for each lecture in order to keep record of class attendance. Students are encouraged to have regular seats in the classroom.
4. Cheating and plagiarism are serious academic matters and they will be handled by the following policy and by the University policy. A grade of zero is assigned for the entire assignment. For example, zero is assigned for the entire test and not for individual parts of the test. Automatic failure of the course can result from a zero grade on an individual assignment. The case will be reported to the Dean of Students for disciplinary action.
5. In accordance with Americans Disabilities Act, students with bona fide disabilities will be afforded reasonable accommodation. The office of Special Student Services will certify a disability and advise faculty members of reasonable accommodations. If you have a specific disability that qualifies you for academic accommodations, please notify your instructor and provide certification from Disability Services (Office of Special Students Services). The Office of Special student Services is directed by Ms. Bernita Pulmas and is located in the Student Center, Room 270, Phone 460-7212.

ME 326 MATERIALS SCIENCE - SPRING 2007
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	DATE			READING ASSIGNMENT	PROBLEMS
1	Mon	8	January	Chapter 1	To be assigned in class
2	Wed	10		Chapter 2	
3	Fri	12		Chapter 2	
	Mon	15		Martin Luther King Day	
4	Wed	17		Chapter 3	
5	Fri	19		Chapter 3	
6	Mon	22		Chapter 3	
7	Wed	24		Chapter 4	
8	Fri	26		Chapter 4	
9	Mon	29		Chapter 4/5	
10	Wed	31		Chapter 5	
11	Fri	2	February	Chapter 5	
12	Mon	5		Chapter 6	
13	Wed	7		Chapter 6	
14	Fri	9		Chapter 7	
15	Mon	12		Chapter 7	
16	Wed	14		Chapter 8	
17	Fri	16		Chapter 8	
18	Mon	19		Review	
19	Wed	21		Test 1	
20	Fri	23		Chapter 9	
21	Mon	26		Chapter 9	
22	Wed	28		Chapter 9	
23	Fri	2	March	Chapter 9	
24	Mon	5		Chapter 10	
25	Wed	7		Chapter 10	
26	Fri	9		Chapter 10	
			Spring Break	March 12-18	
27	Mon	19		Chapter 11	
28	Wed	21		Chapter 11	
29	Fri	23		Review	
30	Mon	26		Test 2	
31	Wed	28		Chapter 12	
32	Fri	30		Chapter 12	
33	Mon	2	April	Chapter 13	
34	Wed	4		Chapter 13	
35	Fri	6		Chapter 14	
36	Mon	9		Chapter 14	
37	Wed	11		Chapter 15	
38	Fri	13		Chapter 15	
39	Mon	16		Chapter 16	
40	Wed	18		Chapter 16	
41	Fri	20		Chapter 16	
42	Mon	23		Chapter 17	
43	Wed	25		Chapter 17	
44	Fri	27		Final Review	

EXAM: 1:00 p.m. - 3:00 p.m., Monday, April 30, 2007

TEXT: Materials Science and Engineering: An Introduction, by William Callister, 7th Edition, Wiley