

CE 60 PROPERTIES OF CIVIL ENGINEERING MATERIALS

COURSE OUTLINE

Date	Lectures	Reading Assignment
1. Jan. 22	Introduction	
2. Jan. 24	Atomic Structure and Bonding	L.Notes+
3. Jan. 29	Crystal Structures	CE 60* Chapters 3.1-3.10
4. Jan. 31	Mechanical Properties (Elastic vs. Plastic Behavior, Fracture)	CE 60 Chapters 6.2-6.6 Chapter 4.4.2
5. Feb. 5	Alloys and their Solid Solutions	CE 60 Chapters 4.3
6. Feb. 7	Phase Diagrams	CE 60 Chapters 8.0-8.7
7. Feb. 12	Equilibrium Microstructure of Steel Alloys	CE 60 Chapter 9.2
8. Feb. 14	Phase Transformations	CE 60 Chapter 4.1
9. Feb. 19	Heat Treatment of Steel Alloys	CE 60 Chapter 9.3
10. Feb. 21	Quenched and Tempered Steel	
11. Feb. 26	Quenched and Tempered Steel	
Feb. 28	FIRST MIDTERM EXAMINATION	
	<i>E 47 Students join CE 60 Lectures and Labs</i>	
12. Mar. 5	Introduction to Concrete	CSPM# pp. 1-16
13. Mar. 7	Concrete Aggregates and their Properties	CSPM pp. 56-58; 253-258
14. Mar. 12	Proportioning of Concrete& ACI mix design	CSPM pp. 317-333
15. Mar. 14	Hydration of Portland Cement	CSPM pp. 203-228
16. Mar. 19	Structure of Concrete	CSPM pp. 21-35;41-43
17. Mar. 21	Strength of Concrete	CSPM pp. 49-76
18. April 2	Elasticity and Failure of Concrete	CSPM pp. 85-95
19. April 4	Permeability of Concrete	CSPM pp. 125-130
20. April 9	Durability of Concrete	CSPM pp. 130-152
April 11	SECOND MIDTERM EXAMINATION	
21. April 16	Volume Changes and Creep of Concrete	CSPM pp. 95-109
22. April 18	Structure of Wood and Wood Products	L. Notes
23. April 23	Properties of Wood	L. Notes
24. April 25	Structure and Properties of Construction Steel	CE 60 Chapter 6.4
25. April 30	Strengthening Mechanisms of Construction Steel and Aluminum Alloys	CE 60 Chapter 6.5.1
26. May 2	Summary	
May 16	FINAL EXAMINATION (8am-11am)	

L. Notes+: refers to lecture notes which will be posted on bcourses

CE 60*: refers to pages in Course book for CE 60 by McGraw-Hill (Foundation of Materials Science and Engineering); available in bookstores (isbn#9781121008120) and as e-book.

CSPM#: refers to pages in Concrete, Microstructure, Properties and Materials by Mehta and Monteiro, 3rd edition. The book is available, free of charge: [AccessEngineering: Concrete: Microstructure, Properties, and Materials](#)

Grading Policy: The Laboratory Grade will represent 20% of the final grade. There will be two Mid-Term Examinations each will count 20% of the Course Grade, the home work will count 10%, and there will be a Final Examination which counts 30% of the Course Grade.