CE 542 Theory of Plates (3)

2012 Spring Semester — Tentative Course Syllabus

Lecture	Tuesday	6:30p.m. to 9:10p.m.	KAP 141		
Professor	Dr. A. M. Niazy, P.E.				
Email	Niazy@usc.edu				
Textbook ● Required	A. C. Ugural, "Stresses in Beams, Plates, and Shells," 2 nd edition," CRC Press, 2009, ISBN-13: 978-1-4398-0270-0.				
References	1. Reddy, J. N., "Theory and Analysis of Elastic Plates and Shells," CRC, 2 nd edition, December 2006.				
	2. R. Szilard., "Theory and Analysis of Plates," Prentice Hall, 1974.				
	3. P.L. Gould, "Analysis of Shells and Plates," Prentice Hall, 1999.				
	4. E.H. Mansfield "The Bending and Stretching of Plates," 2 nd edition, Cambridge University Press, 1989.				
	5. S. Timoshenko, and S. Woinowsky-Krieger "Theory of Plates and Shells," McGraw-Hill, 1959.				
	 Boresi, R. Schmidt, and O. Sidebottom, "Advanced Mechanics of Materials." 5th Edition, John Wiley & Sons, Inc., 1993. 				
	7. W. Pilkey, "Stress, Strain, and Structural Matrices," 1st edition, John Wiley & Sons, Inc., 1994.				
	8. W. Young & W. Budynas, "Roark's Formulas for Stress and Strain," 7th Edition, McGraw-Hill Inc., 2002.				
Course Description	Theory of plate bending; rectangular and circular plates; energy methods; numerical methods; vibration of plates, stability of plates, Introduction to shell theory, membrane and bending stresses, cylindrical shells.				
Course Objectives	To achieve fundamental understanding of the classical theory of elastic plates and shells, address limitations and differences, introduce nomenclature, and introduce analytical and numerical solution techniques.				
Learning Objectives	To enable students to apply theory of plates and shells to problems involving various geometries and boundary conditions to diverse problems in civil, mechanical, and Aerospace engineering.				
Policies on:					
Exams	 Closed book Only one sheet of 8.5" x 11" paper (two pages) of formulae allowed Calculator Students must turn in questions sheets with their answer sheets at the end of each exam 				
Homework	Homework problems, which are assigned weekly, are due on the following Tuesday, by 6:30 p.m. in Los Angeles, CA, USA; unless otherwise instructed.				
Late work	Will not be accepted.				
Make-up work	No make-up on any examinations.				
Incomplete work	Will be graded accordingly				
Extra credit	No extra Credit				
Final grade scheme is based on percentages of graded coursework	Homework 20 %				
	Midterm 20 %				
	Project 20 %				
	Final Exam 40 %				
	Total 100 %				

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Tentative Class Calendar

			Homework	
Week	Date	Торіс	Assignment	Due
1	1/10	Elastic Plates: Introduction	HW 1	
2	1/17	Static Analysis of Elastic Plates: Classical Methods	HW 2	HW 1
3	1/24	Static Analysis of Elastic Plates: Classical Methods	HW 3	HW 2
4	1/31	Static Analysis of Elastic Plates: Approximate and Numerical Methods	HW 4	HW 3
5	2/7	Dynamic Analysis of Elastic Plates: Classical Methods in Dynamic Analysis	HW 5	HW 4
6	2/14	Dynamic Analysis of Elastic Plates: Free Flexural Vibration	HW 6	HW 5
7	2/21	Dynamic Analysis of Elastic Plates: Free Transverse Vibrations of Membranes	HW 7	HW 6
8	2/28	Dynamic Analysis of Elastic Plates: Approximate and Numerical Methods		
9	3/6	Midterm Exam (90 minutes)/ Project Discussion	Project	
10	3/13	Spring Recess: March 13-18		
11	3/20	Stability Analysis of Elastic Plates: Fundamentals of Stability Analysis	HW 8	HW 7
12	3/27	Stability Analysis of Elastic Plates: Equilibrium Method/ Energy Methods	HW 9	HW 8
13	4/3	Shells: Introduction	HW 10	HW 9
14	4/10	Shells: Membrane Stresses in Shells	HW 11	HW 10
15	4/17	Shells: Bending Stresses in Shells	HW 12	HW 11
16	4/24	Shells: Cylindrical Shells	HW 13	Project/HW 12
17	5/1	Study Days: April 28 - May 1		
18	5/8	Final Exam (120 minutes)		

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STATEMENT ON ACADEMIC INTEGRITY

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own.

All students are expected to understand and abide by these principles. *SCampus,* the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A:

http://www.usc.edu/dept/publications/SCAMPUS/gov/

Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at:

http://www.usc.edu/student-affairs/SJACS/

STATEMENT FOR STUDENTS WITH DISABILITIES

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible.

DSP Contact Information

Location: STU 301 Hours open: 8:30 a.m. until 5:00 p.m., Monday — Friday Phone number: (213) 740-0776