

<p>Kingdom of Saudi Arabia Ministry of Higher Education Qassim University College of Engineering</p>		<p>المملكة العربية السعودية وزارة التعليم العالي جامعة القصيم كلية الهندسة</p>
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CE 603 Theory of Plates and Shells

College: Engineering

Department: Civil

First: Course Definition

1- Course Code: CE 603

2- Units: 3

3- Semester:

4- Prerequisite:

5- Co-requisite:

6- Location (if not on main Campus):

Second: Course Objectives

- 1- To achieve fundamental understanding of the classical theory of elastic plates and shells ,
- 2- To introduce analytical and numerical solution techniques to problems involving various geometries and boundary conditions

Third: Course Specifications

1- Topics to be covered		
Subject	No of Weeks	Units
Background	1	3
Rectangular plates bent to a cylindrical surface	2	6
Pure bending of plates	1	3
Circular plates	2	6
Rectangular plates isotropic and orthotropic response	2	6
Large deflection of plates	2	6
Shells without bending	2	6
General theory of shell bending	1	3
Shell bending	1	3

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2- Course components (Total hrs in the Semester): 42

Lecture	Exercise	Other
42	-	0

3- Intended Learning Outcomes of the Course (ILO's)

a. Knowledge

i) Description of the knowledge to be acquired:
 -recognize the role of government agencies and code bodies in the design process.
 -gather and sort design input.
 -make reasonable assumptions and test those against fundamental knowledge.
 -conceive design alternatives.
 -carryout design of commonly used prestressed concrete systems using fundamental principles as well as design aids

ii) Teaching strategies to be used to develop that knowledge
 - Class lectures.
 - Term projects.
 - Students' presentations.
 - Group discussion.

iii) Methods of assessment of knowledge acquired
 - Exams.
 - Homework assignments.
 - Term projects.

b- Cognitive (Intellectual) Skills

i) Cognitive skills to be developed
 - Advanced concepts of plates and shells analysis and design.
 - Advanced plates and shells problem modeling.
 - Investigation of advanced plates and shells analysis and design alternatives.-

ii) Teaching strategies to be used to develop these cognitive skills
 - Class lectures.

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- Case studies analysis.
- Term projects.-

iii) Methods of assessment of students' cognitive skills

- Students' seminars and presentations.
- Term projects and exams

c. Interpersonal Skills and Responsibility

i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- Decision making based on engineering analysis.
- Communication skills.
- Team work.-

ii) Teaching strategies to be used to develop these skills

- Class lectures.
- Term projects and -Case studies analysis.

iii) Methods of assessment of students' interpersonal skills and capacity to carry responsibility

- Term project.
- Written reports.
- Students' seminars and presentations.

d. Communication, Information Technology and Numerical Skills

i) Description of the skills to be developed in this domain

- Literature research.
- Problems modeling.
- Utilization of computer applications in analysis and design.

ii) Teaching strategies to be used to develop these skills

- Class lectures.
- Case studies analysis.
- Computer lab sessions and-Term projects

iii) Methods of assessment of students numerical and communication skills

- Term projects.
- Written reports.
- Students' seminars and presentations.

e. Psychomotor (if applicable) & Other Non-cognitive Skills

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i) Description of the psychomotor or other skills to be developed and the level of performance required

- NA

ii) Teaching strategies to be used to develop these skills-

- NA-

iii) Methods of assessment of student's psychomotor skills

- NA

4- Student Assessment Schedule

Serial	Assessment tool (test, group project, examination etc.)	Week due	Weight
1	Term Project – 1	3 rd	15 %
2	Mid Term Exam -1	7 th	15 %
3	Term Project – 2	10 th	15 %
4	Term Project – 3	13 th	15 %
5	Final Exam	16 th	40 %

5- Student Support

- Providing electronic library of textbooks and scientific periodicals.
- Providing the necessary computer applications for the course.

6- Learning Resources

i) Essential Books (References)

- Ugural, C. "Stresses in Beams, Plates, and Shells," 2nd edition," CRC Press, 2009 ISBN-13: 978-1-4398-0270-0.

ii) Course Notes

- NA

iii) Recommended Books

-Reddy, J. N., "Theory and Analysis of Elastic Plates and Shells," CRC; 2nd edition, 2006

iv) Electronic Books & Web Sites:

- Scientific journals and forums.
- Instructor's instruction.-

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v) Periodicals

- ASCE scientific journals.

7- Course Evaluation and Improvement Processes

i) Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Students' questioners.
- Students' evaluation of course and instructor.-

ii) Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Public faculty seminars.
- Assessment by external evaluators of students achievements.
- Instructor (Course) Report

iii) Processes for Improvement of Teaching

- Assessment of students' work by external examiners.
- Analysis of students' evaluation of course and instructor.
- Seminars by industry professionals.

iv) Processes for verifying standards of student achievement

- Check marking by an independent faculty member of a sample of student work.
- Periodic exchange and remarking of a sample of assignments/exams with a external evaluator.

v) Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Assessment and evaluation of the level of achieving the course outcomes through a continuous improvement process (part of a quality assurance system established by the university),
- Consequently, actions are to be taken to improve the course delivery when necessary.
- Review of the course objectives, outcomes and curriculum every 2 years.

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