جامعة المجمعة
Majmaah University

Course Specifications

Muharram 1437 H

Institution:	Majmaah University.
Academic Department :	Civil and Environmental Engineering
Programme :	Civil Engineering
Course :	Reinforced Concrete Design
Course Coordinator :	Dr. Oussama Mohieddine ELALAOUI
Programme Coordinator :	Dr. Sameh S Ahmed
Course Specification Approved Date :	…./ … / …… H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title : Reinforced Concrete Design 1		Course Code: CE217	
2. Credit hours : 5(3, 2, 0)			
Civil Engineering		Civil Engineering	
English	English		
5 - Name of faculty member responsible for the course: Dr. Oussama ELALAOUI			
level 6/ year 3		level 6/ year 3	

7 - Pre-requisites for this course (if any) :

- CE214

8 - Co-requisites for this course (if any) :

- none

9 - Location if not on main campus :

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	✓	What percentage?	70 %
B - Blended (traditional and online)	-	What percentage?	……. %
D - e-learning	✓	What percentage?	20 %
E - Correspondence	-	What percentage?	……. %
F - Other	✓	What percentage?	10 %

Comments :

B Objectives

What is the main purpose for this course?

- To present the materials (Steel and concrete essentially) for the design of reinforced concrete members in a simple and logical approach.
- To introduce the concept of elastic and ultimate design theories.
- To familiarize with ACI codal provisions for design.
- To design RC members subject to flexure, shear and diagonal tension.
- To have the knowledge of controlling the deflection and cracks.
- To have the expertise regarding detailed drawings of the RC structures.

Briefly describe any plans for developing and improving the course that are being implemented :

- Course delivery by citing real life examples and problems.
- Emphasis on understanding concepts and illustrating applications to problems in classroom.
- Solving problems through assignments and tutorials on each topic.
- Written notes are provided, in addition to reference and power point presentations.
- Placing before the class mind provoking and thinking questions.
- Students are strongly recommended to make use of the library and relevant websites on the net.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: Reinforced concrete structures members and behavior.	2	10
Design methods and requirements using ACI building code.	1	5
First midterm exam.	1	2
Flexural behavior of reinforced concrete beams, analysis and design.	6	30
Second midterm exam.	1	2
Shear in beams	2	10
Bond, development length of reinforcement.	2	10
Final exam.	1	4

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	30	0	-	-	75
Credit	3	2	0	-	-	5

3. Additional private study/learning hours expected for students per week.

3-4

- 3 to 4 hours per week on an average for self-study and problem solving

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Understand the basics of Reinforced Cement Concrete	– Course delivery by citing real life examples and problems. – Emphasis on	• Asking questions on different topics. • Midterm and
1.2	Understand the principles of Ultimate Limit State design		
1.3	Learn the ACI provisions for design for flexure, shear etc.		
1.4	Understand the provisions of ACI for development length and		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	splicing	understanding concepts and illustrating applications to problems. – Placing before the class mind provoking and thinking questions.	End-semester tests that will force the student to think and apply the knowledge. • Assignment problems, Exercise, quizzes, Discussions.
2.0	**Cognitive Skills**		
2.1	Explaining the theoretical background in lecture	- Solving problems through assignments on each topic. - Assignment problems, Exercise / tutorial problems for applications that will force the students to think and apply the knowledge gained. - Asking to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1	• Asking the student to solve questions on different topics. • Midterm and End-semester tests that will force the student to think and apply the knowledge. • Assignment problems, Exercises. • Asking the students to solve problems on white board guiding him when required. • Quizzes and Exams. • Asking students to participate in oral discussion during the class.
2.2	Problem solving through well defined, planned and searching questions		
2.3	Provide notes in the form of slides		
2.4	Problems solving – Sample problems and problems solved by students on the Board with support and guidance required.		
2.5	Assignment problems for applications		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		and M-2 + quizzes so that students can apply the knowledge gained.	
3.0	**Interpersonal Skills & Responsibility**		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		
4.0	**Communication, Information Technology, Numerical**		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as internet, and smart board.		
5.0	**Psychomotor**		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions	• Questioning

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		that requires straight thinking and also reverse thinking.	

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First midterm exam	8	20
2	Second exam	13	20
3	Quizzes	Continuous	10
4	Report, and homework assignments	Continuous	10
5	Final Exam	16	40
6	Total	-	**100**

D. Student Academic Counseling and Support

Every day one hour is marked as Office Hour in the Time Table of teaching staff. During this hour the students can consult the teacher individually on a one to one basis for academic advice. In all, teaching staff is available for more than 5 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks :

- Structural concrete : Theory and design, M.Nadim Hassoun, Akthem Al-Manaseer, 5 th edition.

2. List Essential References Materials :

- ChuKia Wang, et. al., "Reinforce Concrete Design", 7th Edition, John Wiley & Sons, 2006.
- F. E. Richart, Jr; James G. MacGregor, . Wight, "REINFORCED CONCRETE: Mechanics and Design", 6th edition.
- Steven H. Kosmatka, "Design and Control of Concrete Mixture, Portland", Portland Cement Association, (Latest edition).

- El-Dakhakhni, W.M., "Modern Design of Reinforce Concrete", The Anglo Egyptian Bookshop, 1990.
- Mac Gregor, J.G., "Reinforced Concrete, Mechanics and Design", Prentice Hall, 1992

3. List Recommended Textbooks and Reference Material :

- International Journal of Concrete Structures and Materials, Springer.
- Grider, A.; Ramirez, J.A. and Yun, Y.M. "Structural Concrete Design", CRC Press LLC, 1999

4. List Electronic Materials :

- Selected Papers, and video clips from U-tube and trustable web sites.

5. Other learning material :

- Seeking Reinforced concrete Design software's.

F. Facilities Required

1. Accommodation

- Lecture room available – (25 students/class) to avoid student movement. It is necessary to keep lectures for one course / level in the same classroom.
- Lab spaces (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.

2. Computing resources

- Available for students in the computer labs. Better to add more in other areas so the students can use them during the break time.

3. Other resources

- Laboratory equipments are available for some tests. But we need raw materials (soil samples) each semester, also to add some instruments to the Reinforced Concrete and Materials lab.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Importance of feedback should be first explained. Only then the feedback should be taken. Have a question as to how the teaching can be improved – speed, more problems etc. Still we depend on the evaluation of previous semesters. However, I intend to do assessment at the middle of each semester.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :

- Ask the students if the speed of teaching and the approach is helping the students in learning the subject.
- Students are free to report any difficulties to the Head of the department.

3 Processes for Improvement of Teaching :

- Review of strategy of at the mid-semester after assessment of M-1 answer papers.
- Group discussion and using different ways in teaching (white board, seminars, Power point, reading, conducting lab works, etc…)
- Industry visits are arranged for students in batches to reputed establishments and factories.

4. Processes for Verifying Standards of Student Achievement

- Independent checking of End-Semester assessment (another faculty member)
- Checking of course files by the Quality Centre Nominee and give suggestions for improvement in writing.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Mid Semester review of Course files.
- End Semester review of Course files.
- Student feedback at end of the semester.
- Feedback of the assessment at the beginning of the next semester.
- Departmental meeting at the beginning of the next semester on improvements suggested.

Course Specification Approved
Department Official Meeting No (…..) Date … / …. / ….. *H*

Course's Coordinator		Department Head	
Name :	Dr. Oussama ELALAOUI	***Name :***	Dr. Abdellah Alshehri
Signature :	.....	***Signature :***	.....
Date :	…./ … / …… *H*	***Date :***	…./ … / …… *H*