Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Reinforced Concrete (1-A)				Course Code:	CVE 213	
Lecture:	2	Tutorial:	2	Practical	0	Total	4
Programme (s) on which this course is given:				B.Sc. Civil Engineering (General)			
Major or minor element of program:			Major				
Department offering the program:			Civil Engineering				
Department offering the course:			Civil Engineering				
Academic Year of program:	Second			Level of program:		First Semester	
Date of specifications approval:				16/3/2010			

B. Professional Information

1. Overall aims of course

By the end of the course the students will be able to:

To have enough knowledge on the fundamentals of analysis & design of reinforced concrete sections, and to be familiar with the design & safety requirements in Egyptian design code of RC structures

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:

a.3) Understand characteristics of engineering materials related to discipline.

a.4) Understand principles of design including elements design, process and/or a system related to specific disciplines.

a.6) define quality assurance systems, codes of practice and standards, health and safety requirements and environmental

a.13) Apply Engineering principles in the fields of reinforced concrete and metallic structures analysis and design, geo-

b. Intellectual Skills

b.2) Select appropriate solutions for engineering problems based on analytical thinking.

b.4) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.
b.15) Analyze and select codes of practices in designing reinforced concrete and metallic structures of all types. Determine the

c. Professional and Practical Skills

c.2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services.
c.6) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop
c.10) Apply quality assurance procedures and follow codes and standards.

d. General and Transferable Skills

d.6) Effectively manage tasks, time, and resources.
d.7) Search for information and engage in life-long self learning discipline.
d.9) Refer to relevant literatures.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
1	Properties of concrete and steel reinforcement	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam

2	External loads and internal forces	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
3	Design methods and safety requirements	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
4	Flexural analysis of RC sections 1	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
5	Flexural analysis of RC sections 2	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
6	Flexural design of RC sections 1	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
7	Flexural design of RC sections 2	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
8	Midterm Exam	2	a3, a4, a6, a13		
			b2, b4, b15		
			d6, d7, d9		
9	Shear design of RC sections	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
			a3, a4, a6, a13	Lectures	Assignments

10	Torsion design of RC sections	2	b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
11	Shear friction and RC corbels	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
12	Axial force design of RC sections	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
13	Eccentric force design of RC sections	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
14	Biaxial bending design of RC sections	2	a3, a4, a6, a13	Lectures	Assignments
			b2, b4, b15	Case study	Quiz
			c2, c6, c10	Class activity	Mid-term exam
			d6, d7, d9	Tutorial	Final exam
15	Final Exam		a3, a4, a6, a13		
			b2, b4, b15		
			c2, c6, c10		
			d6, d7, d9		
Total		**28**			

4- Teaching and Learning Methods:

Check using the symbol √

√	Lectures
	Practical training / laboratory
	Seminar / workshop
√	Class activity
√	Case study
	Project work
√	Tutorial

	Computer based work
	Other :

5- Student Assessment Methods:

Check using the symbol √

√	Assignments	to assess	a3, a4, a6, a13	b2, b4, b15		d6, d7, d9
√	Quiz	to assess	a3, a4, a6, a13	b2, b4, b15		d6, d7, d9
√	Mid-term exam	to assess	a3, a4, a6, a13	b2, b4, b15		d6, d7, d9
	Oral exam	to assess				
√	Final exam	to assess	a3, a4, a6, a13	b2, b4, b15	c5, c14	d6, d7, d9
	Design Project	to assess				
	Report	to assess				
	Experimental write up	to assess				
	Informally assessment	to assess				
	Other	to assess				

6. Assessment schedule

Assessment 1 Assignments on weeks	2 to 14
Assessment 2 Quizzes on weeks	4, 6, 10, 12
Assessment 3 Mid-term exam on week	8
Assessment 4 Oral Exam on week	
Assessment 5 Final exam on week	15
Assessment 6 Design Project on weeks	
Assessment 7 Report on weeks	
Assessment 8 Experimental write up on weeks	
Assessment 9 Informally assessment	

7. Weighting of Assessments

Assignments	10%
Quiz	10%
Mid-term exam	20%
Oral exam	
Final exam	60%
Design Project	
Report	
Experimental write up	
Informally assessment	
Other	

Total	100%

8. List of References

8.1 Course Notes

Lecture notes and handouts prepared by instructor

8.2 Essential Books (Text Books)

Egyptian code of practice and design of RC structures
Egyptian code for design aids for RC structures
Egyptian code for standard reinforcement detailing

8.3 Recommended Books

Design of concrete structures by A.H. Nilson, 2003
Reinforced concrete: mechanics & design by J.G. MacGreger, 2009
Design of reinforced concrete structures- V1 by M. Ghoneim

8.4 Periodicals Web sites, etc

ACI structural journal, American concrete institute
ACI material journal, American concrete institute
Journal of structural engineering, ASCE American society of civil engineers
www.aci.org
www.ASCE.org

9. Facilities Required for Teaching and learning

Lecture room equipped with overhead projector
Presentation board, computer and data show
Laboratory

Course Coordinator:	Prof. Ibrahim Galal Ibrahim Shaaban	Prof. Ahmed AdbulFattah Mahmoud Ahmed
Course instructor:	Associate Prof. Fouad Bakheet Aboud Beshara	
Head of department:	Prof. Ahmed AdbulFattah Mahmoud Ahmed	

Signature:

	D	M	Y
Date:	18	12	2011