

Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Properties & Testing of Materials (1-B)			Course Code:	CVE 122		
Lecture:	3	Tutorial:	2	Practical	1	Total	6
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:	First	Level of program:	Second 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:

This course is designed to introduce the conventional and advanced concrete materials to civil and construction engineering students. The characteristics of the concrete materials, cement, aggregate, water, chemical admixtures and mineral additives are introduced. The laboratory methods for the evaluation of the concrete materials are also included in this course. In addition, the properties and testing of concrete in its fresh stage are introduced.

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.14) Understand Properties, behavior and fabrication of building materials.
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b. Intellectual Skills

b.13) Select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature,

c. Professional and Practical Skills

c.10) Apply quality assurance procedures and follow codes and standards.
c.13) Use laboratory and field equipment competently and safely.
c.14) Observe record and analyze data in laboratory and in the field.

d. General and Transferable Skills

d.1) Collaborate effectively within multidisciplinary team.
d.9) Refer to relevant literatures.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
			a3, a6, a14	Lectures	Assignments

1	Fundamental of concrete as a structural material	6		Class activity	
			c10	Tutorial	
			d9		
2	Cement (manufacturing processes – chemical composition - Type)	6	a3, a6, a14	Lectures	Assignments
			b13	Practical training / Laboratory	Mid-term exam
			c10, c13, c14	Class activity	Oral exam
				Tutorial	Final exam
3	Physical, Hydration and Mechanical properties of Cement	6	a3, a6, a14	Lectures	Assignments
			b13	Practical training / Laboratory	Oral exam
			c10, c13, c14	Class activity	Final exam
				Tutorial	Mid-term exam
4	Tests of cement	6	a3, a6, a14	Lectures	Assignments
			b13	Practical training / Laboratory	Oral exam
			c10, c13, c14	Class activity	Final exam
				Tutorial	Experimental write up
5	Types and properties of the natural and manufactured aggregates	6	a3, a14	Lectures	Assignments
			b13	Practical training / Laboratory	Mid-term exam
			c2	Class activity	Oral exam
				Tutorial	Final exam
6	Tests of the concrete aggregates	6	a3, a14	Lectures	Assignments
			b13	Class activity	Mid-term exam
			c2	Tutorial	Final exam
					Experimental write up
7	Tests of the concrete aggregates (Continued)	6	a4, a5, a6, a10, a14	Lectures	Assignments
			b6, b13	Practical training / Laboratory	Experimental write up
			c2, c12, c13	Class activity	Mid-term exam
				Tutorial	Final exam
8	Midterm Exam				
			a3, a6, a14	Lectures	Assignments

9	Mixing water (Quality and Quantity)	6	b13	Class activity	Oral exam
			c10, c13, c14	Tutorial	Final exam
10	Chemical admixture (Types, Properties and Tests)	6	a3, a6, a14	Lectures	Assignments
			b13	Practical training / laboratory	Oral exam
			c10, c13, c14	Class activity	Final exam
				Tutorial	
11	Chemical admixture (Types, Properties and Tests) (Continued)	6	a3, a6, a14	Lectures	Assignments
			b13	Practical training / laboratory	Oral exam
			c10, c13, c14	Tutorial	Final exam
12	Cement replacement materials (Types, Properties, application)	6	a3, a6, a14	Lectures	Assignments
			b13	Class activity	Final exam
			c10, c13, c14	Tutorial	Oral exam
13	Properties of fresh concrete	6	a3, a6, a14	Lectures	Assignments
			b13	Class activity	Final exam
			c10, c13, c14	Tutorial	Oral exam
14	Tests of fresh concrete	6	a3, a6, a14	Lectures	Oral exam
			b13	Class activity	Final exam
			c10, c13, c14	Tutorial	Experimental write up
15	Final Exam				
Total		78			

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, a6, a14	b13	c10, c13, c14	
√	Quiz	to assess				
√	Mid-term exam	to assess	a3, a6, a14	b13	c10, c13, c14	
√	Oral exam	to assess	a3, a6, a14	b13	c10, c13, c14	
√	Final exam	to assess	a3, a6, a14	b13	c10, c13, c14	
	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
- Assessment 2 Quizzes on weeks
- Assessment 3 Mid-term exam on week
- Assessment 4 Oral Exam on week
- Assessment 5 Final exam on week
- Assessment 6 Design Project on weeks
- Assessment 7 Report on weeks
- Assessment 8 Experimental write up on weeks
- Assessment 9 Informally assessment

3, 5, 13
8
14
15
5, 9, 14

7. Weighting of Assessments

Assignments	10%
Quiz	
Mid-term exam	10%
Oral exam	20%

Final exam
 Design Project
 Report
 Experimental write up
 Informally assessment
 Other
Total

60%
100%

8. List of References

8.1 Course Notes

PDF files supplied

8.2 Essential Books (Text Books)

Egyptian code for design and construction of reinforced concrete buildings
 Egyptain code, third appendix, Laboratory testing of concrete materials
 Neville, A.M. "Properties of Concrete", J, Wiley, ISBN: 0470235276 (1996)

8.3 Recommended Books

Ilson, J.M , "Construction Materials, Their nature and behavior", ISBN 0-419-
 Sonayaji , "Civil Engineering Materials", ISBN 0-13-177643-6.
 American Society for Testing and Materials (ASTM)
 Steven, H.K. et al,"Design and Control of Concrete Mixtures", PCA, Fourth
 edition, ISBN: 0-89312-2173 (2003)

8.4 Periodicals Web sites, etc

9. Facilities Required for Teaching and learning

Data show
 QC laboratory
 Librerary
 Computer, microsoft office, and printing facilities

Course Coordinator:

Prof. Asim Mostafa Kamal AbdulAleem

Course instructor:

Prof. Hossam AIDin Hassan Ahmed Hammad
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Dr. Mohamed Shehata AISayed Ismail

Head of department:

Prof. Ahmed AdbulFattah Mahmoud Ahmed

Signature:

Date:

D	M	Y
		2011