

Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Structural Analysis (1-B)			Course Code:	CVE 121		
Lecture:	3	Tutorial:	3	Practical	0	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:

Understand the analysis of statically determinate frames and draw the normal, shear and bending moment diagrams for frames. Study the **axial stresses** on structures and the **normal stresses** due to single bending moment, double bending moment and double bending moment with addition normal force. How to get the **core** and general equation of stresses.

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:

- a.1) Recognize concepts and theories of mathematics and sciences, appropriate to the discipline.
- a.4) Understand principles of design including elements design, process and/or a system related to specific disciplines.
- a.5) Recognize methodologies of solving engineering problems, data collection interpretation.
- a.8) State current engineering technologies as related to disciplines.
- a.12) Recognize contemporary engineering topics.
- a.14) Understand Properties, behavior and fabrication of building materials.

b. Intellectual Skills

- b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
- b.2) Select appropriate solutions for engineering problems based on analytical thinking.

- b.3) Think in a creative and innovative way in problem solving and design.
- b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.
- b.9) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.

c. Professional and Practical Skills

- c.2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services.
- c.3) Create and/or re-design a process, component or system, and carry out specialized engineering designs.
- c.6) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop

d. General and Transferable Skills

- d.2) Work in stressful environment and within constraints.
- d.3) Communicate effectively.
- d.7) Search for information and engage in life-long self learning discipline.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
1	Loads and Reactions for Frames	6	a1,a4	Lectures	Assignments
			b1,b2	Lectures	Assignments
			c2,c6	Class activity	Assignments
			d2,d7	Class activity	Assignments
			a1,a4	Lectures	Assignments

2	Condition equations for Frames	6	b1,b2	Lectures	Assignments
			c2,c6	Class activity	Assignments
			d2,d7	Class activity	Assignments
3	Internal Force Diagrams for Frames	6	a5,a8	Lectures	Assignments
			b2,b7	Lectures	Assignments
			c3,c6	Class activity	Assignments
			d2,d3	Class activity	Assignments
4	Internal Force Diagrams for Frames	6	a5,a8	Lectures	Assignments
			b2,b7	Lectures	Assignments
			c3,c6	Class activity	Assignments
			d2,d3	Class activity	Assignments
5	Stability of Frames	6	a5,a12,a14	Lectures	Assignments
			b1,b2,b9	Lectures	Assignments
			c2,c3	Class activity	Design Project
			d2,d3,d7	Class activity	Design Project
6	Axial Stresses for Elements	6	a4,a5,a12	Lectures	Assignments
			b2,b7,b9	Lectures	Assignments
			c2,c3	Class activity	Assignments
			d2,d3,d7	Class activity	Assignments
7	Axial Stresses for Elements	6	a4,a5,a12	Lectures	Assignments
			b1,b2,b7	Lectures	Assignments
			c2,c3	Class activity	Design Project
			d2,d3,d7	Class activity	Design Project
8	Midterm Exam		a,4,a5,a12		Mid-term exam
			b1,b2		Mid-term exam
			c3,c6	Class activity	Mid-term exam
			d2,d3	Class activity	Mid-term exam
9	Normal Stresses due to Bending Moment	6	a5	Lectures	Assignments
			a12	Lectures	Assignments
			b2	Class activity	Assignments
			b7	Class activity	Assignments
10	Normal Stresses due to	6	a4,a5,a14	Lectures	Assignments
			b1,b2	Lectures	Assignments

	Bending Moment		c3,c6	Class activity	Assignments
			d2,d3	Class activity	Assignments
11	Normal Stresses due to Double Bending Moment	6	a4,a5,a14	Lectures	Assignments
			b1,b2	Lectures	Assignments
			c3,c6	Class activity	Assignments
			d2,d3	Class activity	Assignments
12	Normal Stresses due to Normal Force and Bending Moment	6	a4,a5,a14	Lectures	Assignments
			b1,b2	Lectures	Assignments
			c3,c6	Class activity	Assignments
			d2,d3	Class activity	Assignments
13	Normal Stresses due to Normal Force and Bending Moment	6	a4,a5,a14	Lectures	Assignments
			b1,b2	Lectures	Assignments
			c3,c6	Class activity	Design Project
			d2,d3	Class activity	Design Project
14	Core and General Equation of Stresses	6	a4,a5,a14	Lectures	Assignments
			b1,b2	Lectures	Assignments
			c3,c6	Class activity	Report
			d2,d3	Class activity	Report
15	Final Exam		a4,a5,a14		Final exam
			b1,b2		Final exam
			c3,c6		Final exam
			d2,d3		Final exam
Total		78			

4- Teaching and Learning Methods:

Check using the symbol \checkmark

\checkmark	Lectures
	Practical training / laboratory
	Seminar / workshop
\checkmark	Class activity
\checkmark	Case study
	Project work
	Tutorial
	Computer based work

Other :

5- Student Assessment Methods:

Check using the symbol

<input checked="" type="checkbox"/>	Assignments	to assess
<input checked="" type="checkbox"/>	Quiz	to assess
<input checked="" type="checkbox"/>	Mid-term exam	to assess
<input type="checkbox"/>	Oral exam	to assess
<input checked="" type="checkbox"/>	Final exam	to assess
<input type="checkbox"/>	Design Project	to assess
<input type="checkbox"/>	Report	to assess
<input type="checkbox"/>	Experimental write up	to assess
<input type="checkbox"/>	Informally assessment	to assess
<input type="checkbox"/>	Other	to assess

a1,a4,a5,a14	b1,b2,b7	c3,c6	d2,d3,d6
a4,a5,a8	b1,b2,b3	c2,c3,c6	d2,d6
a4,a5,a12	b1,b2	c3,c6	d2,d3
a1,a4,a5,a8	b1,b2,b7	c4,c6	d1,d2,d3

6. Assessment schedule

- Assessment 1 Assignments on weeks
- Assessment 2 Assignments on weeks
- Assessment 3 Mid-term exam on week
- Assessment 4 Assignments on weeks
- Assessment 5 Assignments on weeks
- Assessment 6 Design Project on weeks
- Assessment 7 Report on weeks
- Assessment 8 Final exam on week
- Assessment 9 Informally assessment

1,2
3,4,5,6,7
8
9,10
11,12,13,14
15

7. Weighting of Assessments

Assignments	10%
Quiz	10%
Mid-term exam	15%
Oral exam	
Final exam	65%
Design Project	
Report	
Experimental write up	
Informally assessment	
Other	
Total	100%

8. List of References

8.1 Course Notes

course notes & solved examples

8.2 Essential Books (Text Books)

"Theory of Structures-Part1" by El-Dakhakhni.

8.3 Recommended Books

"Problem-Oriented text in Structural analysis & mechanics1" by Pro.Dr.Abdel-

8.4 Periodicals Web sites, etc

To be sited during the course lectures

9. Facilities Required for Teaching and learning

White board

Course Coordinator:

Prof. Osama Ahmed Kamal Mahmoud

Dr. Adel Fayeze Ibrahim

Course instructor:

Dr. Adel Fayeze Ibrahim

Head of department:

Prof. Ahmed AdbulFattah Mahmoud Ahmed

Signature:

Date:

D	M	Y
10	1	2012