CB241 Structural Analysis I

COURSE INFORMATION

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laboratory	
BA141	2	3	4	2	0	3

COURSE AIM

The course aims is to give students the basic understanding of the structural analysis of statically determinate structures.

COURSE WEEKLY CONTENTS

1	Introduction to structural analysis, scope, the definition of a structure, its forms, supports and loads.
2	Basic concepts of structural analysis. Study the stability and determinacy of structures. Equilibrium, Free-body diagram, Reaction forces, Worked examples
3	Internal Forces, sign convection, Relationships between load, shear and bending moment. Methods of calculation of internal forces, Worked examples(1and2).
4	Internal Forces, sign convection, Relationships between load, shear and bending moment. Methods of calculation of internal forces, Worked examples(1and2). continue
5	Internal forces in simple beams subjected to concentrated and uniformly distributed loads, Worked examples.
6	Internal forces in simple beams subjected to non-uniform distributed loads. Worked examples.
7	Internal forces in compound beams Principle of superposition. Worked examples + Midterm Exam
8	Internal forces in inclined beams. Worked examples.
9	Internal forces in simple, three-hinged, closed, multi-storey and multi-bay frames. Worked examples (1and2).
10	Internal forces in simple, three-hinged, closed, multi-storey and multi-bay frames. Worked examples (1and2) continue
11	Internal forces in arches. Worked examples.
12	Forces in arches. Worked examples and 12th week assessment.
13	Member forces in statically determinate planar trusses. Worked examples (1 and 2).
14	Member forces in statically determinate planar trusses. Worked examples (1 and 2). continue
15	Influence lines and its use to calculate the maximum response functions in statically determinate beams and trusses. Worked examples.

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	10 MARKS To be freely distributed among possible assessments			→	30
8 to 12	←		20 MARKS			→	20
13 to 15	←		10 MARKS			→	10
16 or 17	40 Final						40
Total	Exams	Assign.	Quizzes	Reports	Present.	Lab.	100

REFERENCES

Textbook Structural Analysis -SI ED.-,R. Hibbeler, Pearson Education, 8th Edition, 2012.

Other Mechanics of Materials, BEER, F.P. and JOHNSTON, E.R ,McGraw Hill Book Company, New York, 3rd Edition, 2001.

Analysis and Behavior of Structures, ROSSOW, EDWIN C., Prentice Hall, New Jersey, USA, 1996.

Structural Analysis, TARTAGLIONE, LOUIS C., McGraw Hill, New York, USA, 1991.

Fundamental of Structural Analysis, WEST, HARRY H., John Wiley and Sons, Inc., New York, USA, 2nd Edition, 2002.