



Course Specifications

Muharram 1437 H

Institution:	Majmaah University
Academic Department :	Civil & Environmental Engineering
Programme :	Civil Engineering
Course :	Structural Analysis 1
Course Coordinator :	Dr. Amjad Khabaz
Programme Coordinator :	Dr. Sameh S Ahmed
Course Specification Approved Date :	10/ 5 / 1437 H



A. Course Identification and General Information

1 - Course title :	Structural Analysis 1	Course Code:	CE 214
2. Credit hours :	3(3,1,0)		
3 - Program(s) in which the course is offered:	Civil Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	Amjad Khabaz		
6 - Level/year at which this course is offered :	level 5/ year 3		
7 - Pre-requisites for this course (if any) :	<ul style="list-style-type: none"> • GE 103 		
8 - Co-requisites for this course (if any) :	<ul style="list-style-type: none"> • Non 		
9 - Location if not on main campus :	(Building opposite Majmaah Governorate)		
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	70 %
B - Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	10 %
D - e-learning	<input checked="" type="checkbox"/>	What percentage?	10 %
E - Correspondence	<input type="checkbox"/>	What percentage? %
F - Other	<input checked="" type="checkbox"/>	What percentage?	10 %
Comments :	<p><i>The course involves Lectures and exercises parts, teaching these two parts depends on explaining, reports, home works and assignments.</i></p>		

B Objectives

<p>What is the main purpose for this course?</p> <ul style="list-style-type: none"> • To list out the types of structures, support and loads. • To make familiar with idealization of structures and loads. • To have the concept of geometric stability and determinacy. • To analyze determinate trusses. • To analyze determinate beams and plane frames. • To analyze determinate arches. • To have concept of influence line and to draw influence line diagrams for determinate structures.
<p>Briefly describe any plans for developing and improving the course that are</p>



being implemented :

- Course delivery by citing real life examples and problems
- Emphasis on understanding concepts and illustrating applications to problems
- Solving problems through assignment on each topic
- Background materials from the books are provided
- Extensive interaction with students

C. Course Description

1. Topics to be covered

List of Topics	No. of Weeks	Contact Hours
Types of structures, Supports and loads	2	8
Idealization of structures and loads	1	4
Geometric stability and determinacy	1	4
Analysis of determinate beams	2	8
Midterm-I	0.5	2
Analysis of determinate plane frames	2	8
Analysis of determinate trusses	2	8
Midterm-II	0.5	2
Analysis of determinate arches	2	8
Influence lines of determinate structures	1	4
Final Exam	1	4
<i>Total</i>	15	60

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	15	0			60
Credit	3	0	0			3



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

6-8

6-8 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	Analyze of statically determinate structures (beams, frames, arches and trusses).	<ul style="list-style-type: none"> - Course delivery by citing real life examples and problems. - Emphasis on understanding concepts and illustrating applications to problems. - Placing before the class mind provoking and thinking questions. 	<ul style="list-style-type: none"> • Regularly asking questions on different topics and concepts. • Midterm and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Draw normal force, shearing force and bending moment's diagrams.		
1.3	Construct influence lines for certain functions at critical sections and determination the maximum values of these functions due to different types of moving loads in statically determinate structures.		
1.4	Calculate the forces at truss members using section and joint method.		
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> • Asking the student to solve the problems on white board guiding him when required. • Quizzes and Exams. • Asking students to participate in oral discussion during the class. • Setting assignment problems or mini project which will apply
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		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 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	principles and concepts. • Questions in Quiz, Midterm and End semester tests which will force the student to think and apply concepts and principles learnt.
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.		
3.3			
3.4			
3.5			
3.6			
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. • Highlighting the concepts and principles through real life problems • Asking the students to solve the
4.2	Developing the communication skills through interactive discussing during the seminar		
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
4.4			
4.5			
4.6			



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
			numerical part and check that the answers are tallying with notes. <ul style="list-style-type: none"> Asking the students to participate in evaluating their mates.
5.0	Psychomotor		
		-	•

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

	Assessment task	Week Due	Proportion of Total Assessment
1	First midterm exam	7	15
2	Second exam	12	15
3	Quiz, Exercise questions and participation		10
4	Homework, Report, Project and assignments		10
5	Tutorials		10
6	Final Exam	15	40
7	Total		100
8			





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 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks :

- Russell G. Hibbeler, "Structural Analysis", 8th edition, Prentice - Hall.

2. List Essential References Materials :

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3. List Recommended Textbooks and Reference Material :

- Chajes, "Structural Analysis", 2nd edition, Prentice - Hall, 1990.
- Reddy C.S., "Basic Structural Analysis", Tata McGraw Hill, (Latest edition).
- Pandit & Gupta, "Matrix Methods in Structural Analysis", Tata McGraw Hill.
- Junnarkar S.B., "Structural Mechanics", Vol II, Charotar Publishers, (Latest edition).
- Dr. Thadani B.N. & Dr. Desai J.P., "Modern Methods in Structural Analysis",
- Weinall Book Corporation, (Latest edition).
- Wang C.K., "Intermediate Structural Analysis", Tata McGraw Hill, (Latest edition).
- Gupta & Pandit, "Structural Analysis", Vol. I & II, Tata McGraw Hill, (Latest edition).
- Negi L.S. & Jangid R.S., "Structural Analysis", Tata McGraw Hill, (Latest edition).
- Yuan Yu Hsieh, "Elementary Theory of Structures", Prentice Hall, (Latest edition).
- Chajes A., "Structural Analysis", Prentice Hall, (Latest edition).

4. List Electronic Materials :

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

5. Other learning material :

- Seeking structural analysis 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 to add some instruments to the structural analysis 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...)

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 (11) Date 10 / 05 / 1437 H

Course Coordinator

Name : Dr. Amjad Khabaz
Signature : *Amjad*
Date : 02/ 05 / 1437 H

Department Head

Name : Dr. Abdullah AlShehri
Signature : *AlShehri*
Date : 10/ 05 / 1437 H

