جامعة المجمعة
Majmaah University

Course Specifications

Muharram 1437 H

Institution:	Majmaah University.
Academic Department :	Civil and Environmental Engineering
Programme :	Civil Engineering
Course :	Properties and Strength of Materials 1
Course Coordinator :	Dr. Oussama Mohieddine ELALAOUI
Programme Coordinator :	Dr. Sameh S Ahmed
Course Specification Approved Date :	10./ 05 / 1437 H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title :	Properties and Strength of Materials 1.	Course Code:	CE212
2. Credit hours :	3 (2,1,2)		
3 - Program(s) in which the course is offered:	Civil Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	Dr. Oussama ELALAOUI		
6 - Level/year at which this course is offered :	level 6/ year 3		

7 - Pre-requisites for this course (if any) :

- none

8 - Co-requisites for this course (if any) :

- none

9 - Location if not on main campus **:**

(Yahya Building)

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	✓	What percentage?	**70 %**
B - Blended (traditional and online)	-	What percentage?	**……. %**
D - e-learning	✓	What percentage?	**20 %**
E - Correspondence	-	What percentage?	**……. %**
F - Other	✓	What percentage?	**10 %**

Comments :

The course involves exercises and laboratory parts (CE212), teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

What is the main purpose for this course?

- Introduce students to basic civil engineering materials
- Introduction to the physical and chemical properties of materials, structure and their behavior under various loads and environments to understand prediction models and statistical variations for quality control.
- Concepts of stress and strain developed and evaluated for the application of axial, shear, torsional, and bending loads
- aid civil engineering student's selection of suitable materials for construction works
- understand fundamental properties of civil engineering materials
- Promote awareness in students of the importance of material behaviour in both design and construction.
- To present some essential destructive and non-destructive tests to evaluate material's properties.
- Lab part: some basic laboratory tests will be conducted to determine certain properties of different construction materials

Briefly describe any plans for developing and improving the course that are being implemented :

- Course delivery by citing real life examples and problems.
- Emphasis on understanding concepts and illustrating applications to problems.
- Solving problems through assignments and tutorials on each topic.
- Written notes are provided, in addition to reference and power point presentations.
- Emphasis in classroom is on understanding concepts.
- Placing before the class mind provoking and thinking questions.
- Use videos and visiting industrial plant related to the manufacture of civil engineering materials
- Perform laboratory testing to certain construction materials

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: What is materials science and engineering?	2	10
Physical properties.	2	10
First midterm exam.	1	2
Mechanical properties.	2	10
Analysis of data: Statistical approach.	2	10
Second midterm exam.	1	2
Applications for Main Civil Engineering Materials (bricks, concrete, lime, gypsum, timber, wood, metals, ceramics, glasses, etc).	2	10
Non-destructive tests.	2	10
Final exam.	1	2

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	15	30	-	-	75
Credit	2	0	1	-	-	3

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

2-3

- 3-4 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	Introduction to material science and engineering.	- Course delivery by citing real life examples and problems. - Placing before the class mind provoking and thinking questions. - Solving problems - Video tutorial Discussion	• Midterm exams • Periodical short quizzes • Reports, discussions and team work
1.2	Classification of materials		
1.3	Mechanical properties of engineering materials		
1.4	Selection criteria		
1.5	Understand experiments to achieve a quality control of materials used in construction.		
1.6	Analyze stress strain behavior of engineering materials as well as composite construction like RCC.		
1.7	Use statistics to analyze data		
2.0	**Cognitive Skills**		
2.1	Solving practice exercises	- 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 giving	• 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	During experiment and exercise sessions: determine, estimate, draw diagrams, design, conduct, evaluate, comment, and writing reports.		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		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.	- Lectures - Problem solving - Group Discussion - Paying personal attention to each student and caring about his situation.	• Class Participation • 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.		
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicate with teacher, ask questions, solve problems, and	- Exercises	• Write

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	use computers.	- Problem solving	reports and powerpoint presentation • Exercises related to specific topics
4.2	Operate questions during the lecture, work in groups, and communicate with each other		
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
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	Quizzes	Continuous	10
4	Report, and homework assignments	Continuous	20
5	Final Exam	15	40
6	**Total**	-	**100**

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

E. Learning Resources

1. List Required Textbooks :

- No textbook is required. Notes will be posted on the web.

2. List Essential References Materials :

3. List Recommended Textbooks and Reference Material :

- Callister, Jr., W.D., "Materials Science and Engineering; An Introduction", 4th Edition, John Willey & Sons, 1997.
- Somayajji, S. "Civil Engineering materials", Prentice Hall, 1995.
- Young, Mindess, Gray and Bentur , "The Science and Technology of Civil Engineering Materials", Prentice Hall.

4. List Electronic Materials :

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

5. Other learning material :

- Microsoft office software.

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 raw materials each semester, also to add some instruments to the Testing materials 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		Department Head	
Name :	**Dr. Oussama Elalaui**	***Name :***	Dr. Abdullah AlShehri
Signature :	*Oussama*	***Signature :***	*AlShehri*
Date :	09/ 05 / 1437 *H*	***Date :***	10/ 05 / 1437 *H*