The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus

Course Title:	Building Materials Lab (0,0, 3)	**Course Number:**	CE339
Designation:	Compulsory	**Prerequisite(s):**	0401231*
Instructor:	Hisham Qasrawi	**Instructor's e-mail:**	qasrawi@hu.edu.jo
Office Hours:	11:00 – 12.00: Sun., Tue and Thur.		
Required Course:	1 credit hr. 3 contacthours per week		

Course Description (catalog): Introduction to testing & specifications, concrete and mortar tests, aggregate testing, fresh and hardened concrete testing, non-destructive tests, design & testing of concrete mixes.

Textbook(s) and/or Other Supplementary Materials:

A. M. Neville and J. J. Brooks: "Concrete Technology", Longman, Latest edition.
B. ASTM manuals for the specified tests.

References:

Major Topics Covered:

Topic	No. of Weeks	Contact hours*
1. Introduction to building materials testing and evaluation	1	3
2. Normal consistency of cement paste	1/2	1.5
3. Initial and final setting time of cement using Vicat and Gillmore methods	1/2	1.5
4. Compressive strength of cement mortar using 50 mm cubes	1	3
5. Specific gravity and absorption of coarse aggregates.	1/2	1.5
6. Specific gravity and absorption of fine aggregates	1/2	1.5
7. Sieve analysis of coarse and fine aggregate	1	3
8. LA test	1/2	1.5
9. Rodded unit weight	1/2	1.5
10. Tensile test of steel	1	3
11. Mix design using ACI method	1	6
12. Workability of concrete	1	3
13. Admixtures	1	3
14. Non-destructive testing of concrete	1	3
15. Compressive and tensile strength of concrete using cubes and cylinders	1	3
16. Exams	2	6
Total	**14**	**42**

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

The primary objectives of the course are (1) test various building materials (cement, aggregates and steel), (2) test fresh concrete, (3) test hardened concrete using destructive and nondestructive techniques, (4) design and test concrete mixes, (4) prepare reports, analyze data, prepare special plots, and (4), use standards and specifications to judge the suitability of the materials for use in building construction.

The previous points cover 1 and 6.

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#	Outcome Description	Contribution
	General Engineering Student Outcomes	
1.	**an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics**	**30%**
2.	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	
3.	an ability to communicate effectively with a range of audiences	
4.	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	
5.	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6.	**an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions**	**70%**
7.	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	

Grading Plan:

Mid-Term Exam	30 Points	**7/12/2022**
Lab work and reports	30 Points	
Final exam	40 Points	**To be announced**

General Notes: Students are encouraged to visit some of the construction sites.

Prepared by: *Hisham Qasrawi* **Date: 10/10/2022**