



The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus



Course Title:	Building Materials Lab (0,0, 3)	Course Number:	110401339
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*
11. Introduction to building materials testing and evaluation	1	3
12. Normal consistency of cement paste	1/2	1.5
13. Initial and final setting time of cement using Vicat and Gillmore methods	1/2	1.5
14. Compressive strength of cement mortar using 50 mm cubes	1/2	1.5
15. Tensile strength of cement mortar using Briquette samples	1/2	1.5
16. Specific gravity and absorption of coarse aggregates.	1/2	1.5
17. Specific gravity and absorption of fine aggregates	1/2	1.5
18. Sieve analysis of coarse and fine aggregate	1	3
19. LA test	1	3
20. Rodded unit weight	1/2	1.5
21. Tensile test of steel	1	3
22. Mix design using ACI method	2	3
23. Workability of concrete (Slump, VB, Compacting factor and flow table tests). Effect of admixtures.	1/2	3
24. Preparation of specimens for hardened concrete testing	1/2	1.5
25. Admixtures	1/2	1.5
26. Non-destructive testing of concrete	1	3
27. Compressive and tensile strength of concrete using cubes and cylinders	1	3
28. Exams	2	6
Total	15	45

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

The primary objectives of the course are (1) classify building materials according to their uses and properties, (2) understand the composition, manufacture, and properties of cement, (3) classify cements according to their use, (4) classify aggregates according to their sizes, composition and properties, (5) choose the suitable materials for specific uses. (6) understand the properties and behavior of fresh concrete, (7) understand the properties and behavior of hardened concrete., (8) attain good knowledge about the durability of concrete structures and be able to provide early protection or remedial measures where necessary, (9) design concrete mixes , and (10), use standards and judge the suitability of the materials for use in building construction.

The previous points cover a, b and k.



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Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	an ability to apply knowledge of mathematics, science, and engineering	M (25%)
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	H (70%)
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	L (5%)
H=High, M= Medium, L=Low		

Grading Plan:	Mid-Term Exam	30 Points	To be announced
	Lab work and reports	30 Points	To be announced

	Final exam	40 Points	

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

Prepared by: *Hisham Qasrawi*

Date: