

# The Hashemite University Faculty of Engineering Civil Engineering Program Course Syllabus



**Course Title:** Building Materials (3,0, 0) **Course Number:** 110401337

Designation:CompulsoryPrerequisite(s):110402212\*&110103107Instructor:Hisham QasrawiInstructor's e-mailqasrawi@hu.edu.jo

**Office Hours:** 11:00 – 12.00: Sun., Tue, and Thur.

Required Course: Mon.and Wed:. 9:30 to 11 for sec 1 and 11 to 12:30 for sec 2

3 hours per week

**Course Description (catalog):** Cement (types, manufacture, properties and hydration), aggregates, fresh concrete, hardened concrete, strength, strength development, durability, mix design, compliance with specification.

# Textbook(s) and/or Other Supplementary Materials:

A. M. Neville and J. J. Brooks: "Concrete Technology", Longman, Latest edition..

**References:** ACI 211.1, ASTM

#### **Major Topics Covered:**

Topic	No. of Weeks	Contact hours*
1. Introduction to Building	2/3	2
Materials		
2. Cement: Manufacture, Types and Properties	2	6
3. Aggregates: Classification, Testing and	2	6
Properties		
4. Water for use in concrete	1/3	1
5. Fresh Concrete	2	6
6. Production of concrete: Batching, mixing,	2	6
transporting, pouring, compacting and		
finishing.		
7. Admixtures	2	6
8. Hardened Concrete: Strength and Durability	2	6
9. Design of Concrete Mixes	1	3
10. Non-destructive testing of concrete	1	3
Total	15	45

<sup>\*</sup>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.

### Student Outcomes (SO) Addressed by the Course:

#	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	40%	



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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	200/	
	data, and use engineering judgment to draw conclusions	20%	
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning	40%	
	strategies.	40%	
<b>H</b> =High, <b>M</b> = Medium, <b>L</b> =Low			

**Grading Plan:** Exam 1 30% 28-11-2022

Exam 2 30% 2-1-2023

Final exam 40% To by announced by the registrar

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

Prepared by: Hisham Gasrawi Date: 10<sup>th</sup> Oct. 2022