



Jordan University of Science and Technology
Faculty of Engineering
Civil Engineering Department

CE905 Sustainable Construction Materials And Technology - JNQF Level: 6

Second Semester 2024-2025

Course Catalog

3 Credit Hours. Design criteria and constraints; Role of materials in design (characteristics and specification); Definition, history, concept, and impact of sustainability; Sustainable use of construction materials (Toxicity, Energy, Construction and Demotion, Ecology, Resources); Sustainable binders and concrete materials and bricks units; Guidance to sustainable engineering practice (LEED); Sustainable design; Specification for sustainable materials; Life-cycle assessment; Design Project.

Teaching Method: On Campus

Text Book

Title	Eco-efficient Construction and Building Materials
Author(s)	Fernando Pacheco Torgal; Said Jalali
Edition	1st Edition
Short Name	1
Other Information	Springer London Dordrecht Heidelberg New York

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	PORTUGAL SB07 SUSTAINABLE CONSTRUCTION, MATERIALS AND PRACTICES	Luis Bragança et al.	1st Edition	The authors and IOS Press.
3	Materials for Sustainable Sites	Meg Calkins	1st Edition	John Wiley & Sons, Inc.

Instructor

Name	Prof. Rami Haddad
Office Location	C2L2
Office Hours	

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Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 13:30 - 15:00 Room: C2008

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Design criteria and constraints; Role of materials in design (characteristics and specification);	From 1
Weeks 2, 3, 4, 5, 6	Definition, history, concept, and impact of sustainability; Sustainable use of construction materials (Toxicity, Energy, Construction and Demotion, Ecology, Resources);	From 1, From 2, From 3
Weeks 7, 8	Sustainable binders and concrete materials and bricks units	From 2
Week 9	Guidance to sustainable engineering practice (LEED)	From 2
Week 10	Sustainable design	From 1, From 2, From 3
Week 11	Specification for sustainable materials	From 2
Weeks 12, 13, 14	Life-cycle assessment	
Weeks 15, 16	Design Project	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe the principle of sustainability [10L6K1]	10%	
Be able to identify the usability of different concrete materials in building and infrastructure projects [15L6K2]	15%	
Assess the impact of using concrete with different sustainable materials for sustainability performance aspects. [25L6S1]	25%	
Apply life cycle assessment for the evaluation of sustainability of concrete materials. [15L6S3]	15%	
Propose solutions that lead to production and deployment of concrete with lower environmental impacts. [15L6S2]	15%	
Design a building following sustainability principle from materials perspective. [20L6C1]	20%	

Relationship to NQF Outcomes (Out of 100%)					
L6K1	L6K2	L6S1	L6S2	L6S3	L6C1
10	15	25	15	15	20

Policy	
Course Evaluation	The performance of students in this course is evaluated based on major homeworks, exams, and a project.

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