



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

CE740 Highway Materials - JNQF Level: 9

First Semester 2024-2025

Course Catalog

3 Credit Hours. This course offers fundamental understanding of the behavior of highway materials including soils, aggregates, asphalt binder, and asphalt mixes. It covers mix design, material testing procedures, and specifications.

Teaching Method: Blended

Text Book

Title	Hot Mix Asphalt Materials, Mixture Design and Construction
Author(s)	Roberts, F L; Kandhal, P S; Brown, E R; Lee, D-Y; Kennedy, T W
Edition	3rd Edition
Short Name	Ref. No. 1
Other Information	Published by the National Asphalt Pavement Association (NAPA), Lanham MD. (2009)

Instructor

Name	Dr. Aslam Alomari
Office Location	C2L1
Office Hours	Sun : 10:30 - 11:30 Sun : 13:30 - 14:00 Mon : 11:30 - 13:30 Tue : 10:30 - 11:30 Tue : 13:30 - 14:00 Thu : 12:30 - 13:30
Email	aaalomari3@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Tue : 14:00 - 16:00

Room: C2009

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Introduction, Terminology, and Definitions (Asphalt Pavements)	From Ref. No. 1
Weeks 3, 4	Engineering Properties of Soils: Soil Types, Soil Classification Systems, Components of Soils, Weight/Mass and Volume Relationships, Permeability, Capillarity, and Frost Heave, Special Soil Tests for Pavement Design, Soil Exploration, Soil Compaction, Water in Soil, Shear Strength of Soils	From Ref. No. 1
Weeks 5, 6	Aggregates: Mineralogy and Chemical Properties, Physical Properties, Aggregate Quality, Gradation Requirements	From Ref. No. 1
Weeks 7, 8, 10	Asphalt Binder: Asphalt Refining, Sources and Manufacturing, Testing Procedures, Rheological Properties, Grading Systems, SHRP Binder Specifications and Test Procedures?	From Ref. No. 1
Weeks 11, 12, 13	Asphalt Mixtures: Mix Types, Mix Design	From Ref. No. 1
Week 9	Midterm Exam	
Weeks 14, 15	Term paper presentations	
Week 16	Final exam	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Recognize the different terminology and definitions used in asphalt pavement engineering [1L9K1]	10%	
Identify the desirable engineering properties of soils required in the design and production of hot mix asphalt mixes [1L9K2]	20%	
Identify the desirable engineering properties of aggregates required in the design and production of hot mix asphalt mixes [1L9K2]	20%	
Identify the desirable engineering properties of aggregates required in the design and production of hot mix asphalt mixes [1L9K2]	20%	
Be able to evaluate and judge the proper hot mix asphalt mixes [1L9S2]	30%	

Relationship to Program Student Outcomes (Out of 100%)											
PI-1a	PI-2a	PI-2b	PI-2c	PI-2d	PI-3a	PI-4a	PI-4b	PI-5a	PI-6a	PI-6b	PI-7a

Relationship to NQF Outcomes (Out of 100%)		
L9K1	L9K2	L9S2
10	60	30

Evaluation	
Assessment Tool	Weight
Homework, Quizzes, and In-Class Assignments	10%
Class Project and Presentation	20%
Midterm Exam	20%
Final Examination	50%

Policy	
University Rules	University rules will be strictly applied

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