



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

CE462 Geotechnical Engineering - JNQF Level: 7

First Semester 2024-2025

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). Composition and structure of soils, Phase relations and index properties, soil classification, soil compaction, principle of effective stress, stresses due to self-weight, stresses due to applied loads, soil permeability, seepage: one and two dimensional, flow net, consolidation theory and consolidation settlement analysis: immediate and consolidation settlement, secondary compression, shear strength of soils (introductory).

Teaching Method: On Campus

Text Book

Title	Braja M. Das, Principles of Geotechnical Engineering, 9th Ed.
Author(s)	Braja M. Das,
Edition	9th Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Terzaghi, K, Peck, R and Mesri G., (1996) Soil Mechanics in Engineering Practice, 3rd Ed.	Terzaghi, K, Peck, R and Mesri G.	3rd Edition	

Instructor

Name	Dr. Samer Rababah
Office Location	C2 L-1
Office Hours	Sun : 08:30 - 10:00 Mon : 10:00 - 11:30 Mon : 13:00 - 14:00 Tue : 08:30 - 10:00 Wed : 10:00 - 11:30

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Class Schedule & Room
Section 3: Lecture Time: Mon, Wed : 08:30 - 10:00 Room: C3017

Prerequisites		
Line Number	Course Name	Prerequisite Type
232112	CE211 Engineering Geology (2)	Prerequisite / Study
232021	CE202 Strength Of Materials	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Geotechnical Engineering -General Perspective	From 1
Weeks 2, 3	Soil formation and mineralogy	From 1, From 2
Weeks 4, 5	Physical and Index Properties of Soils	From 1, From 2
Week 6	Soil Compaction	From 1
Weeks 7, 8, 9	Soil Permeability, Seepage, Capillarity	From 1
Weeks 9, 10	Stresses in Soils	From 1
Weeks 10, 11, 12	Consolidation and Swell of Clays	From 1, From 2
Weeks 13, 14, 15	Shear Strength of Soils	From 1

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To be able to identify the soil mineralogy, basic soil indices, classify the soil, perform basic weight-volume calculations, and how to obtain compaction parameters. [1L7K1]	10%	1st
To be able to identify the basic principles of flow through porous media, including Darcy's law, the equation of continuity, seepage forces, and flow nets. [1L7K1]	15%	1st
Be able to compute both geostatic stresses (total stress, effective stress, and pore pressures) and induced stresses due to point, line, and area loads. [1PI-2a] [1L7K1]	20%	1st

To be able to identify the basic consolidation theory. Be able to estimate the amount of settlement and the time required for settlement under a given load. [1PI-2a] [1L7K1]	25%	2nd
To be able to estimate the shear strength parameters, including the Mohr-Coulomb failure criterion. Be able to solve engineering problems related to shear strength analysis. [1L7K1]	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
	45										

Relationship to NQF Outcomes (Out of 100%)	
	L7K1
	100

Evaluation	
Assessment Tool	Weight
1st	30%
2nd	30%
final	40%

Policy	
exams	1st exam : 30 2bd exam: 30 final exam: 40

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