Jordan University of Science and Technology

Faculty of Engineering

Civil Engineering Department

CE767 Soil Properties & Their Measurement - JNQF Level: 9
First Semester 2021-2022

Course Catalog
3 Credit Hours. Estimation of basic soil properties for engineering purposes, index and classification properties, permeability, consolidation and secondary compression, swelling potential, shear strength characteristics of soils, subsurface explorations, field testing, Geophysical Tests, Groundwater Measurements, integrity testing of drilled shafts
Teaching Method: On Campus

Text Book	
Title	American Society for Testing and Materials standards
Author(s)	ASTM
Edition	1st Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Soils and Foundations: Reference Manual. (2006). Federal Highway Administration.	Samtani, N.C. and Nowatzki, E.A.	1st Edition	
3	Engineering properties of soils and their measurement (1992)	Bowles, J.E.	1st Edition	

Instructor	
Name	**Dr. Samer Rababah**
Office Location	C2 L-1
Office Hours	
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 14:30 - 16:00 Room: C3016

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Determination of Water Content + Specific Gravity + Sieve Analysis	From **1**, From **3**
Week 2	Plasticity and Engineering Classification of Soils	From **1**
Week 3	Compaction+ Field Density	From **1**
Week 4	Permeability	From **1**
Week 5	Consolidation	From **1**
Week 6	Swelling potential	From **1**
Week 7	Direct Shear Test on Sand	From **1**
Weeks 8, 9	Triaxial Tests	From **1**
Weeks 10, 11	Subsurface Explorations	From **2**
Weeks 12, 13	In situ testing in soils (SPT, CPT, PMT?)	From **1**, From **2**
Weeks 14, 15	Geophysical Tests	From **2**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To be able to estimate the basic soil properties for engineering purposes, index and classification properties, permeability, consolidation and secondary compression, swelling potential, and shear strength characteristics of soils. [1L9K1]	30%	
To be able to identify Subsurface Exploration Techniques, including the need for subsurface exploration and the planning and implementation of various site investigation methods, such as drilling, sampling, and in-situ testing. [1L9K1, 1L9K2]	20%	
To be able to evaluate Geophysical Methods (e.g., seismic refraction, resistivity surveys) for subsurface profiling and understanding soil and rock properties. [1L9S1, 1L9S2]	20%	
To be able to design subsurface exploration programs for specific project needs, including determining the appropriate methods, scope, and depth of investigation [1L9S1]	10%	

To be able to analyze and Interpret Subsurface Data; evaluate soil and rock data collected during subsurface explorations to identify stratigraphy, geotechnical properties, and potential site challenges, including groundwater conditions. [1L9S2]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7

Relationship to NQF Outcomes (Out of 100%)			
L9K1	L9K2	L9S1	L9S2
40	10	20	30

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