

COURSE IDENTIFICATION FORM

Course Code and Name: IM5019 INFILTRATION TESTS AND SOIL HYDRAULIC CHARACTERISTIC CURVES

Department of : CIVIL ENGINEERING / MASTER PROGRAMME

Semester	Theoretic Hour	Practice Hour	Total Hour	Credits	ECTS	Education Language	Type: Compulsory Elective
Atumn/Spring	3	0	3	3	5	Turkish	Optional

Prerequisite (s)

Instructor

Mail :
Web :

Course Assistant

Mail :
Web :

Groups / Classes

Course Aim

To provide information on the measurement of physical and mechanical properties of soil. To convey to the students the meaning of the basic experiments conducted in the laboratory and the infiltration experiments conducted in the field in order to determine the water characteristic curves of soils, their evaluation with algebraic and numerical methods and their place in foundation engineering applications. To teach how to conduct experiments, collect data, analyze and interpret the results.

Course Goals

How to determine the soil water characteristics and the use of these values in soil water cycle and pollution transport problems. Hydraulic characteristics of the soil will be determined through field and laboratory experiments.

Course Learning Outs and Proficiencies

Soil physical properties, ability to perform infiltration tests, preparation of test reports, data analysis and interpretation

Course Basic and Auxiliary Contexts

- Caicedo , B., Murillo , C., Hoyos , L., Colmenares , J.E., & Berdugo , I.R. (Eds .). (2013). Advances in unsaturated soils . CRC Press . London .
- Vafai K. Taylor & Francis, 2005 . Hand book of Porous Media, CRC Press , London .
- Musy , A., & Soutier , M. 1991, Physique the left, Presses Polytechniques et universitaires Romances , Lausanne
- Angulo-Jaramillo , R., Bagarello , V., Iovino , M., & Lassabatere , L. (2016). infiltration measurements for soil hydraulic

characterization . Berlin, Germany: Springer .

Methods of Give a Lecture

Lectures, research, laboratory and field experiments.

Assessment Criteria		If Available, to Sign (x)	General Average Percentage (%) Rate
	Midterm Exam	X	50
	1. Quiz		
	2. Quiz		
	3. Quiz		
	4. Quiz		
	Oral Examination		
	Practice Examination (Laboratory, Project etc.)		
	Final Exam	X	50
Semester Course Plan			
Week	Subjects		
1	Introduction; Basic Definitions. Soil Samples, Laboratory Report		
2	Soil Classification, grain distribution, sand, clay ratios		
3	Darcy's Law and the Continuity Equation		
4	Soil Water Retention Curve and Literature Models		
5	Soil Hydraulic Conductivity Curve and Literature Models		
6	Soil physical properties and void ratio determination,		
7	Infiltration theory, infiltration curve		
8	Beerkan Infiltration Experiment		
9	Beerkan infiltration Experiment Derivation of soil hydraulic curves		
10	Suction pressure infiltration test		
11	Derivation of soil hydraulic curves for suction pressure infiltration experiment		
12	Other infiltration techniques,		
13	Evaporation methods		
14	Lysimeter method		