

Identification	Subject	Soil Mechanics
	Department	Civil Engineering
	Program	Undergraduate
	Term	Fall 2026
	Instructor	Yusif Sadigov
	E-mail:	sadigovyusif@gmail.com
	Phone:	+994502707774
	WhatsApp:	+994556183028
	Classroom/hours	
	Office hours	
Prerequisites	Engineering Mechanics	
Language	English	
Compulsory/Elective	Compulsory	
Description	Technology that deals with soil (and rock) as an engineering material in civil engineering projects.	
Required textbooks and course materials	Murthy, V.N.S., "Soil mechanics and Foundation Engineering". CBS Publishers Distribution Ltd., New Delhi. 2007 Gopal Ranjan and Rao A.S.R. "Basic and Applied soil mechanics", Wiley Eastern Ltd, New Delhi (India), 2000.	
Course website		
Course outline	General principals, Definition of ingredients & mix design, acceptance conditions, design for flexure, shear in concrete, torsion, axial loading, columns, slabs, walls, seismic design, introduction to precast/prestressed concrete	
Course objectives	Soil amongst most variable and difficult of all materials to understand and model Complex stress-strain (non-linear, irreversible) Properties highly variable function of soil types and stress history Properties change with time, stress, environment, ... Every site has different soil conditions - new challenge Soil "hidden" underground and data on small fraction of deposit	
Learning outcomes	• Identify and classify different soil types based on their physical and engineering properties. • Determine soil parameters using laboratory and field test results. • Calculate stresses in soil under different loading conditions. • Evaluate soil permeability and groundwater flow. • Analyse soil compaction, consolidation and settlement. • Determine the shear strength and bearing capacity of soils. • Apply basic soil mechanics principles to foundation and earthwork design. • Interpret geotechnical investigation reports and use the results in practical engineering problems.	
Teaching methods	Lecture	X
	Experiential exercise	X
	Assisted work	X
	Assisted lab work	X
	Others	

Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		25
	Class Participation and Attendance		10
	Quizzes		15
	Presentations		15
	Final Exam		35
	Total		100
	• NO CELL PHONES are allowed during lecture and lab sessions. PLEASE turn them off before lecture! (Not silent or vibrating mode) • No late assignments will be accepted without prior arrangement with the instructor for acceptable excuses. Medical and family emergency will be considered on case-by-case basis. • No late homework will be accepted. Homework is to be completed on an individual basis. Students may discuss homework with classmates, but students are responsible for your own work. If students have consulted classmates, please note the individuals name on the top of students' assignment. • Quizzes may be given unannounced throughout the term and will count as one homework. There will be no make-up quizzes. • No make-up exams. If students miss an exam, a zero score will be assigned to the missed exam. • If students should miss class due to personal emergency or medical reasons, please notify the instructor by email immediately. A doctor's note will be required for make-up work. • Students are responsible for completing the reading assigned from the textbook related to the covered topics and for checking email regularly for important information and announcements related to the course. • University policy on academic honesty concerning exams and individual work will be strictly enforced. • BE ON TIME! • Generative AI tools may be used only for idea generation, structuring, and language editing, provided that their use is clearly disclosed. The submitted work must reflect the student's own analysis and critical thinking, and AI-generated content must not exceed 25% of the work.		
Policy			

Tentative Schedule			
Week	Dates (planned)	Subject topics	Textbook/ Assignments
1		Introduction	Chapter 1
2		Geotechnical / Geoenvironmental Engineering	Chapter 1
3		Conduct of Subject Nature of Soil	Chapter 2
4		Nature of Soil	Chapter 3
5		Soil Structure: Clay-Water Forces, Interparticle Forces, Fabric	Chapter 4
6		Midterm Exam	
7		Environmental Factors	Chapter 5
8		Dry Soil (Cohesionless)	Chapter 6
9		Mohr Circle, Stress Paths, Elastic Stress Distribution	Chapter 6
10		Stress-Strain and Strength Behavior of Sand	Chapter 7
11		Rankine Earth Pressures, Infinite Slopes, Retaining Walls	Chapter 8
12		Bearing Capacity of Sands (Theory and Practice)	Chapter 8
13		Settlement of Sands	Chapter 9
14		Saturated Soil (No or Steady State Flow)	Chapter 9
15		Effective Stress Principle, Capillarity, Soil Suction	Chapter 9
		Final Exam	

This syllabus is a guide for the course and any modifications to it will be announced in advance.