1.	Title of the course	Advanced Soil Mechanics
2.	Course number	CE534L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CE5112/11
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To introduce the theoretical framework for understanding the stress-strain and hydraulic behaviour of different types of soils under static loading conditions. To present the success and failures of several documented case studies of geotechnical infrastructure relating the engineering behaviour of soil.	
10.	**Course Content:** Origin, nature, and distribution of soils; Description of individual particle; Clay mineralogy and its role in fundamental soil behaviour; Effective stress principle; Permeability; Steady state flow; Seepage; Flow net; Design of filters; Transient flow; One dimensional and generalized consolidation theories; Primary and secondary consolidation settlements; Shear strength of soils: theory and measurements of shear strength of different type of soils; Shear behaviour of soils under static and dynamic loads; Factors affecting shear behaviour; Pore-pressure parameters; Total and effective stress parameters; Total and effective stress-paths; Stress-strain characteristics of soils; Concepts of critical state soil mechanics; Engineering behaviour of soils of India.	
11.	**Textbook(s):** 1. Holtz R D, Kovacs W D and Sheahan T C, *An Introduction to Geotechnical Engineering*, 3rd Edition, Prentice Hall (2015). 2. Lambe T W and Whitman R V, *Soil Mechanics SI Version*, 2nd Edition, John Wiley & Sons (2005).	
12.	**Reference(s):** 1. Budhu M, *Soil Mechanics and Foundations*, 3rd Edition, Wiley (2010). 2. Handy R and Spangler M, *Geotechnical Engineering: Soil and Foundation Principles and Practice*, 5th Edition, McGraw-Hill Education (2007). 3. Mitchell J K and Soga K, *Fundamentals of Soil Behavior*, 3rd Edition, John Wiley & Sons (2005). 4. Terzaghi K, Peck R B and Mesri G, *Soil Mechanics in Engineering Practice*, 3rd Edition, John Wiley & Sons (1996).	