

1.	Title of the course	Geotechnical Engineering
2.	Course number	CE307L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CE3204/8
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	<b>Course Objective(s):</b> This course describes the applications of principles of soilmechanics to analyse and design geotechnical structures resting on or within the soil or constructed with soil materials, the concepts and methods of subsoil exploration to evaluate strength and stiffness properties of soils and rocks,the behaviour of soil subjected to dynamic loads.Upon completion of this course,the student will be able to design a suitable geotechnical structure including foundation, slopes and retaining walls.	
10.	<b>Course Content:</b> Mohr circle of stress and strains; Shear strength of soils: theories and evaluation through laboratory and field techniques; Site investigation and subsoil exploration; Earth pressure theories; Design of retaining walls, sheet piles and bulkheads; Earth pressures in open cuts; Analysis and design of underground buried pipes; Stability of slopes: analysis of infinite and finite slopes, stability conditions for earth dam reservoirs; Bearing capacity of shallow and deep foundations: theories and evaluation through field and laboratory techniques; Introduction to soil dynamics.	
11.	<b>Textbook(s):</b> 1. Das B M, <i>Principles of Geotechnical Engineering</i> , Cengage (2014). 2. Salgado R, <i>The Engineering of Foundations</i> , McGraw-Hill Education (2016).	
12.	<b>Reference(s):</b> 1. Rajan G and Rao A S R, <i>Basic and Applied Soil Mechanics</i> , New Age International Publishers (2016). 2. Arora K R, <i>Soil Mechanics and Foundation Engineering</i> , Standard Publisher Distribution (2009). 3. Manoj D and Gulhati S, <i>Geotechnical Engineering</i> , McGraw Hill Education (2017). 4. Handy R L and Spangler M G, <i>Geotechnical Engineering: Soil and Foundation Principles and Practice</i> , McGraw-Hill Education (2007).	