1.	Title of the course	Geology and Soil Mechanics
2.	Course number	CE204L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CE2204/8
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):** This course describes physical, mechanical and hydraulic characteristics of rocks and soils. This course describes the geologic cycle, mechanisms of formation of different types of rocks and soils, an understanding of soil identification and classification, effect of the interaction of fluid and soil-solid matrix on the physical and mechanical response of soil, principles of stress distribution due to applied loads, compaction and compressibility of soil.	
10.	**Course Content:** Description of earth's interior, geological cycle, formation of different types of rocks, mineralogy, structural geology, physical and mechanical properties of rocks; Origin and formation of soils; Phase relationship in soils; Soil grain and aggregate properties, index properties including consistency limits and grain size distribution, identification and classification of soils; Clay mineralogy; Permeability of soils; Effective stress principle; Seepage forces and quicksand phenomenon; Seepage through soils including flow net diagrams; Capillarity of soils; Stress distribution in soils due to external loads; Compaction of soils; Consolidation of soils: theory, stress history and settlement computations	
11.	**Textbook(s):** 1. Das B M, *Principles of Geotechnical Engineering*, Cengage (2014). 2. Kesavulu C N, *Textbook of Engineering Geology*, Macmillan India Limited (1996).	
12.	**Reference(s):** 1. Bell F B, *Engineering Geology*, Butterworth-Heinemann (2006). 2. Holtz R D, Kovacs W D and Sheahan T C, *An Introduction to Geotechnical Engineering,* Pearson (2011). 3. Lambe T W and Whitman R V, *Soil Mechanics SI Version,* Wiley India Pvt. Ltd. (2008). 4. Rajan G and Rao A S R, *Basic and Applied Soil Mechanics*, New Age International Publishers (2016).	