INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Geotechnical Engineering
2.	Course Number	CE3204
3.	Status of the Course	Core
4.	Structure of Credits	3-1-0-4
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Civil & Environmental Engineering
8.	To take effect from	July 2018
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	**Course Objective:** This course describes the applications of principles of soil mechanics 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.	
12.	**Course Content:** 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.	
13.	Text book(s): 1. Das B M, *Principles of Geotechnical Engineering,* Cengage (2014). 2. Salgado R, *The Engineering of Foundations,* McGraw-Hill Education (2016).	
14.	Reference(s): 1. Rajan G and Rao A S R, *Basic and Applied Soil Mechanics,* New Age International Publishers (2016). 2. Arora K R, *Soil Mechanics and Foundation Engineering,* Standard Publisher Distribution (2009). 3. Manoj D and Gulhati S, *Geotechnical Engineering,* McGraw Hill Education (2017). 4. Handy R L and Spangler M G, *Geotechnical Engineering: Soil and Foundation Principles and Practice,* McGraw-Hill Education (2007).	