

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Earthquake and Wind Engineering
2.	Course Number	CE5028
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Civil & Environmental Engineering
8.	To take effect from	July 2019
9.	Prerequisite	CoT
10.	Whether approved by the Department	Yes
11.	Course Objective: This course will introduce the aspects of structural design with regard to earthquake and wind loads. The course will cover various design strategies such as force and displacement based design, capacity based design and performance based design. The course will also provide an overview of the nonlinear static and dynamic analysis of structures.	
12.	Course Content: Introduction to seismology, earthquake resistant design philosophy; Response spectrum analysis; Nonlinear static pushover analysis and dynamic analysis; Finite element modelling in earthquake engineering; Codal provisions for seismic design of reinforced concrete/steel structures and storage tanks; Introduction to seismic risk and hazard, performance based earthquake engineering; Introduction to wind engineering, discussions on IS-875 (Part-III) codal provisions for industrial buildings, space trusses and transmission line tower; Along wind and across wind response in slender structures; Static and dynamic effect of wind on structures.	
13.	Text book(s): 1. Ghosh S K and Fanella D A, <i>Seismic and Wind Design of Concrete Buildings</i> , International Code Council-New York (2004). 2. Taranath B S, <i>Wind and Earthquake Resistant Buildings: Structural Analysis and Design</i> , Marcel Dekker, New York (2004).	
14.	Reference(s): 1. Datta T K, <i>Seismic Analysis of Structures</i> , John Wiley & Sons, New York (2010). 2. IS 1893-Part-I, <i>Criteria for Earthquake Resistant Design of Structures: General Provisions and Buildings</i> , Bureau of Indian Standards, New Delhi (2016).	