

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Advanced Structural Analysis
2.	Course Number	CE3021
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	UG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Civil Engineering
8.	To take effect from	July 2018
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: This course introduces the concept of matrix method of structural analysis through the force and displacement based formulations, the latter being the stepping stone towards finite element modeling of structures. The course also has an introduction to plastic analysis which is fundamental to understanding collapse theories of structures.	
12.	Course Content: Review of Flexibility method of analysis – consistent deformation, matrix formulation, lack of fit, support settlement, effect of temperature; Displacement based approach – stiffness method, matrix formulation; Comparison between stiffness and flexibility based methods; Kani’s method of analysis of framed structures; Cable structures; Introduction to plastic analysis of structures.	
13.	Text book(s): 1. Wang C K, <i>Intermediate Structural Analysis</i> , Tata McGraw-Hill (2010). 2. Menon D, <i>Structural Analysis</i> , Narosa Publishing House Pvt. Ltd. (2008).	
14.	Reference(s): 1. McKenzie W M C, <i>Examples in Structural Analysis</i> , CRC Press (2014). 2. Reddy C S, <i>Basic Structural Analysis</i> , Tata McGraw-Hill (2011).	