

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE**

1.	Title of the Course	Advanced Mechanics of Solids
2.	Course Number	CE5103
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered to	PG
6.	New Course/ Modification to	New Course
7.	To be offered by	Dr.Abhijit Ganguli Dept. of Civil Engineering
8.	To take effect from	January 2018
9.	Prerequisite	UG level Strength of Materials, Engineering Mechanics
10.	Whether approved by the Program	Yes
11.	Course Objective: (Max 70 words)	This course introduces the governing differential equations of continuum solid mechanics and their analytical solutions in three dimensions (3D) or in two dimensions (2D) under various approximations. The course also offers a brief introduction to elastodynamics of solids. By attending this course, the student gets exposed to the mathematical foundation which is necessary for pursuing research in the field of mechanics of solids.
12.	Course Content: (Max 100 words):	Introduction; Theory of Stress; Kinematics; Isotropic Linear Elastic Solids; Anisotropic Linear Elastic Solids; Boundary Value Problems; Plane Elasticity; Boundary Value Problems in Polar Coordinates; Torsion; Bending; Elastic Wave Propagation.
13.	Text Book:	<ol style="list-style-type: none"> 1. Sadd, M. H., Elasticity: Theory, Applications and Numerics, Elsevier Inc., 2005. 2. Singh, A. K., Mechanics of Solids, Prentice Hall of India Pvt. Ltd., 2007.
14.	References:	<ol style="list-style-type: none"> 1. Malvern, L. E., Introduction to the Mechanics of a Continuous Medium Prentice Hall Inc., 1969. 2. Bower, A. F., Applied Mechanics of Solids, CRC Press, 2005. 3. Barber, J., Elasticity, Springer, 2010. 4. Timoshenko, S. P. and Goodier, J. N., Theory of Elasticity, McGraw-Hill, 1970.