

COURSE CODE	COURSE TITLE	L	T	P	C
1152AE136	Theory of Elasticity	3	0	0	3

**Course Category:**

Programme Elective

**a. Preamble :**

In this course, the students get familiarized with the stress and strain used in both Cartesian and polar coordinates. Also, they are introduced to the concepts of plane stress and plane strain and axisymmetric problems.

**b. Prerequisite Courses:**

Aircraft structural analysis  
Engineering mathematics

**c. Related Courses:**

Nil

**d. Course Educational Objectives :**

- To familiarize with the theory of elasticity, with emphasis on linear elasticity
- To study about Linear and nonlinear strain measures, the boundary value problem for linear elasticity, plane problems in linear elasticity, and three dimensional problems in linear elasticity

**e. Course Outcomes :**

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Understand the various assumptions in solving elasticity problems, Equations of equilibrium	K2
CO2	Familiarize with stress-strain relations, strain-displacement relations, compatibility equations	K3
CO3	Understand the solutions by polynomials, stresses , displacements for beams subjected to different loads	K3
CO4	Familiarize with problems in polar coordinates for axisymmetric problems	K3
CO5	Expose to various theories of torsion and applications of shafts of various cross-sections	K3

