

1.	Title of the course	Introduction to Linear Elasticity
2.	Course number	ME317L
3.	Structure of credits (L-T-P-C)	2-0-0-2
4.	New course/modification to	New
5.	To be offered by	Mechanical Engineering
6.	Proposed by	ANUP BASAK
7.	Prerequisite	None
8.	<b>Course Objective(s):</b> To learn the theory of linear elastic solids and solve some initial-boundary value problems for engineering applications.	
9.	<b>Course Content:</b> Vector and tensor analysis; Concept of strains and strain compatibility; Cauchy stresses: Cauchy postulate and Cauchy relation, equilibrium equations, symmetry of stress tensor; Generalized Hooke's law and elastic constants; Boundary value problems in linear elasticity: plane stress and plane strain conditions; Axisymmetric problems in cylindrical and spherical coordinates: thick-walled pressure vessels, spinning of thin circular disc; Torsion of non-circular bars; Bending of curved beams; Linear elastic fracture mechanics; Thermoelasticity.	
10.	<b>Textbook(s):</b> 1. Sadd M H, Elasticity: Theory, Applications and Numerics, 3rd Edition, Cambridge University Press (2015).	
11.	<b>Reference(s):</b> 1. Slaughter W S, The Linearized Theory of Elasticity, Springer (2002). 2. Timoshenko S P and Goodier J N, Theory of Elasticity, 3rd Edition, McGraw Hill (1970). 3. Barber J R, Elasticity, 3rd Edition, Springer (2010).	