

1.	Title of the course	Advanced Mechanics of Solids
2.	Course number	ME539L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME5107/4
6.	To be offered by	Department of Civil and Environmental Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	<p>Course Objective(s): 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.</p>	
10.	<p>Course Content: 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.</p>	
11.	<p>Textbook(s):</p> <ol style="list-style-type: none"> 1. Sadd M H, <i>Elasticity: Theory, Applications and Numerics</i>, Elsevier Inc (2005). 2. Singh A K, <i>Mechanics of Solids</i>, Prentice Hall of India Pvt. Ltd. (2007). 	
12.	<p>Reference(s):</p> <ol style="list-style-type: none"> 1. Barber J, <i>Elasticity</i>, Springer (2010). 2. Bower A F, <i>Applied Mechanics of Solids</i>, CRC Press (2005). 3. Malvern L E, <i>Introduction to the Mechanics of a Continuous Medium</i>, Prentice Hall Inc (1969). 4. Timoshenko S P and Goodier J N, <i>Theory of Elasticity</i>, McGraw-Hill, 1970. 	