



Course No.	Course Title	No. of Units			Pre-requisites
		Th.	Pr.	Credit	
MATH 301	Methods of Applied Mathematics	3	-	3	MATH 241

#### Course Objectives:

- Explain the mathematical model of the deformation problem.
- Recognize the relations between stresses and displacement for solid bodies.
- Describe the traction, displacement, and mixed boundary conditions for structures.
- Describe key features and operating principles of the general solution strategies for deformation problems.

#### Course Description:

Mathematical preliminaries, Stress and equilibrium, Material behaviors-linear elastic solids, Hooke's law, Formulation and solution strategies, Principle of superposition, Strain energy and related principles, Principle of virtual work and principle of minimum potential and complementary energy.

#### Main Text Book:

- Applied Calculus, by S. T. Tan, 2<sup>nd</sup> edition PWS-KENT 1990.
- Matrix Analysis and Applied Linear algebra, C. D. Meyer, SIAM 2001.

#### Subsidiary Books:

- Ordinary Differential Equations with Modern Applications, by G. Ladas and N. Finizio, Brooks/Cole, 1988.
- Analytical Mechanics, by G. Fowles and George L. Cassiday, 7<sup>th</sup> edition, Cengage Learning 2004.