



STRENGTH AND PROPERTIES OF MATERIALS

Course Number	MET 302
Course Name	Strength and Properties of Materials
Credit Value (Breakdown of theory and lab credits)	3T+0L
Catalog Course Description	The focus of this course is on learning the fundamentals and applications of strength and properties of materials. Students will study stresses and strains in members subjected to tension, compression, torsion, and shear, and bending. Concepts of combined and principle stresses. Mohr's circle for plane stresses will be introduced. Students will learn to construct shear force and bending moment diagrams for beams. Students will analyze external and internal forces and moments diagrams for beams. Students will analyze external and internal forces and moments in beams, bars, shafts, pressure vessels etc. Finally students will be exposed to engineering applications involving combined loadings and to statically indeterminate members. <i>Prerequisite: MET 201</i>
Student Learning Outcomes/Objectives /Competencies of the Course	<ul style="list-style-type: none"> • Analysis of mechanical properties and stress-strain in members subjected to various loading like tension, compression, bending and shear. • Understanding the relationships between allowable stress, material strength and factor of safety • Knowledge of mechanical properties of ductile and brittle materials. • Analysis of torsion, bending and shear in members, shear force and bending moment diagrams. • Analysis of deflection of beams and shafts. Analysis of plane-stress transformation and use of Mohr's circle diagrams.
College-Wide Student Learning Outcomes	Critical Thought

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