EM - Engineering Mechanics

EM 506. Advanced Dynamics. 3 Credits. (3 Lec) On Demand
; Lec 3 PREREQUISITE: EGEN 335. Kinematics of particles, rigid bodies, and mechanisms. Lagrange’s equations, constraints, applications, and numerical solutions.

EM 510. Elastic & Inelastic Analysis I. 3 Credits. (3 Lec) S
Lec 3 PREREQUISITE: EM 525 or EGEN 415. Fundamentals of linear elasticity, linear viscoelasticity and plasticity. Correspondence principles for elastic and viscoelastic materials and analogy between elastic and inelastic materials will be presented. Constitutive theories of linear elasticity, linear viscoelasticity, and plasticity. Application to static structural theories for beams, torsion, plane stress, and plane strain will be covered for elastic and inelastic behavior.

EM 518. Theory Plates & Shells. 2 Credits. (2 Lec) S alternate years, to be offered even years.
Lec 2 PREREQUISITE: EGEN 415. Theory of small plate deformations, membrane shell theory, shell bending.

EM 525. Continuum Mechanics. 3 Credits. (3 Lec) F
Lec 3 PREREQUISITE: EGEN 415. Solid and fluid mechanics, laws of vector and tensor transformations, vector and tensor calculus using cartesian tensors, theory of deformation, principles of thermodynamics, constitutive equations for elastic solids and viscous fluids.

EM 560. Finite Elem Analys in Engr. 3 Credits. (2 Lec, 1 Lab) F
Lec 2, Lab 1 PREREQUISITE: EGEN 415 or EGEN 435. General finite element analysis. Application to the classical equations of fluid, solid, and thermal mechanics.

EM 591. Special Topics. 1-4 Credits. (1-4 Lec; 12 cr max) On Demand
Max 12 cr. PREREQUISITE: Upper division courses and others as determined for each offering. Courses not required in any curriculum for which there is a particular one-time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.

EM 592. Independent Study. 1-3 Credits. (1-3 Ind; 4 cr max) ES,Su
PREREQUISITE: Graduate standing, consent of instructor, approval of Department Head and Dean of Graduate Studies. Directed research and study on an individual basis.