MATERIALS SCIENCE (MTSC)

MTSC 4010 Mechanical Behavior of Materials (4 Credits)
Effects of microstructure on mechanical behavior of material; emphasis on recent developments in materials science, fracture, fatigue, creep, wear, corrosion, stress rupture, deformation and residual stress. Cross listed with MTSC 3010.

MTSC 4020 Composite Materials I (4 Credits)

MTSC 4215 Composite Materials II (4 Credits)
A continuation of MTSC 4210: Strength and toughness of composites, thermal behavior, fabrication methods, examples of applications. Prerequisite: MTSC 4210.

MTSC 4450 Fracture Mechanics (4 Credits)
Topics include stress field at a crack tip, linear elastic fracture mechanics, energy release rate, stress intensity factors, plastic zones, plane stress, plane strain, fracture toughness, Airy stress functions, elastic-plastic fracture mechanics, J integral, crack tip opening displacements, experimental testing, fatigue, life prediction, crack closure, weight functions, failure analysis. Cross listed with MTSC 3450.

MTSC 4800 Advanced Topics (MTSC) (1-5 Credits)
Selected topics (depending on student and faculty interest): fracture mechanics, fatigue, nonlinear constitutive models, dynamic behavior of materials, corrosion resistant design, thermodynamics of solids II.

MTSC 4991 Independent Study (1-10 Credits)
MTSC 4995 Independent Research (1-16 Credits)
MTSC 5995 Independent Research (1-16 Credits)