UTSA English Language Center

Graduate International Pathway: Mechanical Engineering track

Course Options

- **ME 5243. Advanced Thermodynamics. (3-0) 3 Credit Hours.**
  - **Course Description:** Prerequisite: ME 3293. Concepts and postulates of macroscopic thermodynamics; formulation of thermodynamic principles; exergy stability of thermodynamic systems, principles of irreversible thermodynamics, chemical equilibria.
  - **Semesters available:** Spring.

- **ME 5713. Mechanical Behavior of Materials. (3-0) 3 Credit Hours.**
  - **Course Description:** Prerequisite: Graduate standing in engineering or consent of instructor. Mechanical behavior of engineering materials (metals, alloys, ceramics, and polymers) elasticity, dislocation theory, strengthening mechanism, fracture, fatigue, creep, and oxidation.
  - **Semesters available**: Spring.

- **ME 6013. Advanced Engineering Mathematics I. (3-0) 3 Credit Hours.**
  - **Course Description:** Prerequisites: EGR 2323 and EGR 3323, or equivalent courses. Advanced methods of applied mathematics, including vector differential calculus, linear algebra, functional space and their applications to engineering problems. (Same as BME 6033 and EGR 6013. Credit can only be earned for one course: ME 6013, EGR 6013 or BME 6033.) (Formerly titled "Analytical Techniques in Engineering Analysis.")
  - **Semesters available:** Fall.

- **ME 6123. Advanced Systems Dynamics and Control. (3-0) 3 Credit Hours.**
  - **Course Description:** Prerequisite: Graduate standing in engineering or consent of instructor. Dynamic modeling of mechanical and multi-energy domain systems; state-space and frequency-domain analysis of dynamic systems; feedback control systems; multivariable state-feedback control; principles of controllability, observability, stability; computer-based simulation system dynamics. (Formerly ME 5113. Credit cannot be earned for both ME 6123 and ME 5113.)
  - **Semesters available:** Fall.

- **ME 6413. Elasticity. (3-0) 3 Credit Hours.**
  - Prerequisite: Graduate standing in engineering or consent of instructor. Strain and stress, constitutive relations for linear elastic solids, plane problems, variational principles. (Formerly ME 5413. Credit cannot be earned for both ME 6413 and ME 5413.)
  - **Semesters available:** Fall.

- **ME 6613. Advanced Fluid Mechanics. (3-0) 3 Credit Hours.**
  - Prerequisite: Graduate standing in engineering or consent of instructor. Dynamics of incompressible fluid mechanics viscous flow, Navier-Stokes equations, boundary layer

theory, and numerical operations for incompressible fluid flow. (Formerly ME 5613. Credit cannot be earned for both ME 6613 and ME 5613.)

- **Semesters available:** Fall.