

MECHANICAL ENGINEERING (MENG)

MENG 301: Machine Design

Kinematics and dynamics of machinery, including analytical kinematics, force analysis, cam design and balancing. Application of elementary mechanics of solids to analyze and size machine components for stress and deflection. Introduction to finite element analysis with emphasis on beam and plate models.

Credits: 3

College: School of Design & Engineering

Prerequisites: ENGR 218 and ENGR 301 [Min Grade: D]

Schedule Type: Lab, Lecture

MENG 325: Engineering Vibrations

Vibrations will be a thorough treatment of vibration theory and its engineering applications, from simple degree to multi degree-of-freedom system. Topics will include harmonic excitation, forced responses, multiple degree-of-freedom systems, design for vibration suppression, distributed parameter systems, vibration testing and experimental modal analysis, and finite element method.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

MENG 399: Mechanical Engin Design Sem

The purpose of the Mechanical Engineering Design Seminar is to support student success as Mechanical Engineering students prepare to move into their senior design experience. As a prerequisite for the Engineering senior design experience, the course is built around didactic and experiential educational components, pre-project research assignments, and independent research. Included in the course are elements that teach and reinforce the project proposal process, refine technical report writing skills, and promote lifelong learning and continuing professional development.

Credits: 0.5

College: School of Design & Engineering

Prerequisites: ENGR 311 and ENGR 301 [Min Grade: D]

Schedule Type: Lecture

MENG 405: Intro to Mechatronics

This course will prepare students in the interdisciplinary field of engineering that comprises the integration of mechanics, electronics and computer technology coordinated by control architecture. Emphasis on computer-integrated electromechanical systems will help the students to understand the design, analysis and practical approach of system integration.

Credits: 3

College: School of Design & Engineering

Prerequisites: ENGR 322 [Min Grade: D]

Schedule Type: Lab, Lecture

MENG 407: Thermodynamics

This course considers fundamental laws governing the transformation of heat into mechanical energy. Properties of gases and vapors and the processes between states are explored as are applications of the first and second laws of thermodynamics. A study of the transfer of heat by conduction, convection and radiation in steady and unsteady flow is also conducted.

Credits: 3

College: School of Design & Engineering

Schedule Type: By Appointment, Lecture

MENG 427: System Dynamics and Controls

Students will study modeling of physical systems including electromechanical systems; reduction of block diagrams; signal flow graphs and Mason's gain formula; response of second order systems: natural frequency and damping ratio and how they relate to rise-time, peak-time, settling-time, and overshoot; stability and the Routh-Hurwitz criterion; steady-state error and sensitivity; root locus; and Design of cascade compensators using root locus and frequency response.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

MENG 428: Heat Transfer

This course covers energy analysis; vapor and gas power cycles; vapor and gas refrigeration cycles; thermodynamic properties of mixtures and solutions; psychrometry and air-conditioning; reacting mixtures and combustion.

Credits: 3

College: School of Design & Engineering

Prerequisites: MENG 407 [Min Grade: D]

Schedule Type: By Appointment, Lecture