Engineering (ENGR)

ENGR 1010. Technological Problem Solving. 3 Hours.
Prerequisite: MATH 1111 or higher. Development of the features and principles of problem solving techniques based on a variety of fundamental models for general application, such as physical component, sketching, graphical, and mathematical models. Emphasis is placed on solving problems of a technological nature.

ENGR 2001. Principles and Applications of Engineering Materials. 3 Hours.
Prerequisite: CHEM 1211. A treatment of structures, properties, processing, and performance of engineering materials and their relationships. The course introduces the molecular and microstructural basis for electrical, optical, thermal, and mechanical properties of engineering materials including metals, ceramics, polymers, semiconductors, and composites.

ENGR 2010. Introduction to Engineering. 3 Hours.
Introduction to engineering and engineering technology disciplines that form the basis for a variety of career opportunities; engineering design as creative problem solving; lessons from design failures; professionalism and ethics; and problem solving using industry standard software.

ENGR 2200. Statics. 3 Hours.
Prerequisite: PHYS 2211K. Elements of statics in two and three dimensions; forces and moments; particles, objects, and structures in equilibrium; centroids; distributed forces and beams; friction.

ENGR 2310. Introduction to Signal Processing. 4 Hours.
Prerequisites: CS 1301 and MATH 2262. Introduction to signal processing for discrete-time and continuous-time signals. Filtering, frequency response, Fourier Transform, Z Transform. Laboratory emphasizes computer-based signal processing.

ENGR 2320. Introduction to Computer Engineering. 3 Hours.
Prerequisites: CS 1301 and MATH 2262. Computer system and digital design principles; architectural concepts, software, Boolean algebra, number systems, combinational datapath elements, sequential logic, and storage elements; design of DRAM control and I/O bus.

ENGR 2500. Engineering Graphics for Design. 3 Hours.
An introduction to engineering design and three-dimensional visualization, geometric construction, graphical projection and sketching, descriptive geometry, and computer graphics.

ENGR 3210. Dynamics. 3 Hours.
Prerequisite: PHYS 2211K with a grade of "C" or better. Kinematics and kinetics of particles; kinematics and kinetics of rigid bodies in plane motion; kinematics and kinetics of rigid bodies in three-dimensional motion.

ENGR 3220. Mechanics of Deformable Bodies. 3 Hours.
Prerequisite: ENGR 2200. Definition and analysis of strain and stress, applications to axially loaded elements, torsion of circular shafts and bending of beams, introduction to simple plasticity and column stability.

ENGR 3320. Circuit Analysis. 3 Hours.
Prerequisites: ENGR 2310 and PHYS 2212. Corequisite: MATH 3340. Introduction to the basic concepts of DC and AC circuit theory and analysis.

ENGR 4310. Thermodynamics. 3 Hours.
Also offered as PHYS 4310. Prerequisites: PHYS 2212K with a grade of "C" or better. Pre- or Co-requisite: MATH 2263. Basic principles of classical thermodynamics, which includes open and closed systems for both steady and transient processes.

ENGR 4800. Engineering Internship. 3-9 Hours.
Prerequisite: MATH 2261, Co-requisite: PHYS 2211K, a minimum GPA of 2.5, and permission of the internship coordinator. Graded "Satisfactory" or "Unsatisfactory". Active participation in supervised research or applied engineering project. Credit hours are determined by the engineering internship coordinator and are based on the project. A daily log of activities, a report on work done and experience gained or a research paper related to the project performed are required.

ENGR 4950. Directed Study in Engineering. 1-3 Hours.
Prerequisites: Junior standing; permission of advisor, instructor, and Department Head. Study in an area or subject not normally found in established courses offered by the department; may also allow student to explore in more depth an area or subject covered by the pre-engineering program. Up to maximum of 3 hours.