## ENGR (Engineering (ENGR))

**ENGR 1020 - Introduction to Engineering & Technology**  
(3 Credits)  
This course introduces students to various tools and problem solving skills common to most fields of engineering and technology. The course will emphasize developing both individual critical thinking, and collaborative problem solving skills, essential in today's world of technology. Students will learn the basics of the engineering design process of product design, testing and evaluation. As teams, students will apply this process to complete a semester-long project that will involve practical problem solving, computer simulation and physical product fabrication. To assist in the project analysis, documentation and presentation, students will develop skills with spreadsheets, word processing and presentation software.  
(Prerequisite: MATH 0100 or higher or permission of instructor) Lecture: 2 hours, Lab: 2 hours - Lab Fee: $20

**ENGR 1030 - Engineering Graphics**  
(3 Credits)  
This course studies the theory of orthographic projection and the principles of descriptive geometry. Students construct exact drawings of three-dimensional objects including auxiliary views, cross-sections, dimensioning, pictorial drawings and free-hand sketching. Lecture: 2 hours, Lab: 3 hours

**ENGR 2050 - Engineering Mechanics Statics**  
(3 Credits)  
This is a basic course built around solutions and applications of Newton's laws of forces in equilibrium. Systems of particles and rigid bodies are studied using standard scalar and vector methods. (Prerequisite: MATH 2141 or equivalent) Lecture: 4 hours

**ENGR 2060 - Engineering Mechanics Dynamics**  
(3 Credits)  
This course covers the application of Newton's law of motion, to include kinematic and kinetic studies of the motion of systems of particles and rigid bodies, acted upon by unbalanced forces. (Prerequisites: ENGR 2050 and MATH 2142) Lecture: 4 hours

**ENGR 2150 - Introduction to Electrical Engineering**  
(3 Credits)  
This basic course in electrical engineering includes a study of static, electric and magnetic fields, Coulomb's laws, capacitance and inductance, Gauss' Law, Ampere's Law, electrical current and voltage. (Prerequisites: MATH 2141 and PHYS 1100 or equivalent) Lecture: 3 hours

**ENGR 2151 - Introduction to Electrical Engineering Lab**  
(1 Credit)  
Laboratory exercises reinforce the theory learned in the Introduction to Electrical Engineering course. Use of various electronic instruments to make measurements is an important part of the lab. (Prerequisite or Corequisite: ENGR 2150) Lab: 3 hours

**ENGR 2160 - Introduction to Engineering Analysis**  
(2 Credits)  
This course introduces students to analytical methods employed in engineering problem solving using computer software. (Prerequisite: MATH 2141) Lecture: 1 hour, Lab: 2 hours

**ENGR 2320 - Digital Electronics**  
(4 Credits)  
This course studies logical building blocks and functional building blocks such as OR gates, AND gates, inventors, XOR gates, registers, counters, adders, D/A converters, A/D converters, decoders, encoders and binary multiplexers. Number systems and codes, arithmetic processes and memory devices are also covered. Input, output, memory, control and arithmetic functional units are developed using functional building-blocks. Note: Engineering students should consult department chair or academic advisor before enrolling. (Prerequisite or corequisite: MATH 2141) Lecture: 3 hours, Lab: 3 hours

**ENGR 2520 - Microprocessor & Microcomputers**  
(4 Credits)  
This hands-on course familiarizes students with computer and microprocessor software and hardware. Computer architecture and interfacing with input and output devices is studied. Students develop an understanding of how the computer is used to control electronic and mechanical devices. (Prerequisite or corequisite: MATH 2141) Lecture: 3 hours, Lab: 3 hours
ENGR 2540 - Mechanics of Materials for Engineering  
(3 Credits)  
This is a basic study of the theory of stresses and strains in beams, columns and thin-walled cylinders including combined bending and direct stresses. (Prerequisite: ENGR 2050) Lecture: 3 hours

ENGR 2620 - Linear Electrical Systems and Circuit Theory for Engineers  
(3 Credits)  
This course offers a study of electrical linear circuit theorems, Kirchhoff's Laws, DC resistive networks, dependent sources, natural and forced response of first and second order circuits, sinusoidal steady-state response and AC power. (Recommended: Calculus background; Prerequisite: ENGR 2150; Prerequisite or Corequisite: MATH 2362) Lecture: 4 hours

ENGR 2621 - Linear Circuits Lab  
(2 Credits)  
Topics covered in this lab include: DC measurements, natural and step response of first and second order circuits, AC measurements, impulse and frequency response and operational amplifiers. (Prerequisite or Corequisite: ENGR 2620) Lecture: 1 hour, Lab: 3 hours - Lab Fee: $20