ENGINEERING (ENGR)

♦ENGR 1201
Introduction to Engineering
CRT HRS:2   LEC HRS:1   LAB HRS:3   OTH HRS:0
This course is an introduction to engineering as a discipline and a profession. It includes instruction in the application of mathematical and scientific principles to the solution of practical problems for the benefit of society.
Prerequisite: TSI complete in Reading and completion of MATH 1414 with a "C" or better; or equivalent.

♦ENGR 1304
Engineering Graphics
CRT HRS:3   LEC HRS:2   LAB HRS:3   OTH HRS:0
This course is an introduction to computer-aided drafting using CAD software (Solid Works) and sketching to generate two- and three-dimensional drawings based on the conventions of engineering graphical communication; topics include spatial relationships, multi-view projections and sectioning, dimensioning, graphical presentation of data, and fundamentals of computer graphics. If time permits, rapid prototyping via 3D printing and/or CNC milling will be introduced.
Prerequisite: TSI complete in Reading and completion of MATH 1414 with a grade of "C" or better or equivalent.

♦ENGR 2301
Engineering Mechanics - Statics
CRT HRS:3   LEC HRS:3   LAB HRS:0   OTH HRS:0
This is a calculus-based study of engineering mechanics involving the description of forces, moments, and couples acting on stationary engineering structures; equilibrium in two and three dimensions; free-body diagrams; friction; centroids; centers of gravity; and moments of inertia.
Prerequisite: PHYS 2425 and MATH 2413 with a grade of "C" or better and completion of or concurrent enrollment in MATH 2414, or permission from the instructor.

♦ENGR 2302
Engineering Mechanics - Dynamics
CRT HRS:3   LEC HRS:3   LAB HRS:0   OTH HRS:0
This is a calculus-based study of engineering mechanics involving the motion of particles, rigid bodies, and systems of particles; Newton's Laws; work and energy relationships; principles of impulse and momentum; application of kinetics and kinematics to the solution of engineering problems.
Prerequisite: ENGR 2301 and MATH 2414 with a grade of "C" or better or permission from the instructor.

♦ENGR 2405
Electrical Circuits I
CRT HRS:4   LEC HRS:3   LAB HRS:3   OTH HRS:0
This course covers principles of electrical circuits and systems, including basic circuit elements (resistance, inductance, mutual inductance, capacitance, independent and dependent controlled voltage, and current sources). Topology of electrical networks; Kirchhoff's laws; node and mesh analysis; DC circuit analysis; operational amplifiers; transient and sinusoidal steady-state analysis; AC circuit analysis; first- and second-order circuits; Bode plots; and use of computer simulation software to solve circuit problems. Laboratory experiments supporting theoretical principles involving DC and AC circuit theory, network theorems, time, and frequency domain circuit analysis. Introduction to principles and operation of basic laboratory equipment; laboratory report preparation. Corequisite: MATH 2420.
Prerequisites: PHYS 2426 and MATH 2414 with a grade of "C" or better.

♦ENGR 2406
Introduction to Digital Systems
CRT HRS:4   LEC HRS:3   LAB HRS:3   OTH HRS:0
This course is an introduction to theory and design of digital logic, circuits, and systems. Number systems, operations, and codes; logic gates; Boolean Algebra and logic simplification; Karnaugh maps; combinational logic; functions of combinational logic; flip-flops and related devices; counters; shift registers; sequential logic; memory and storage are covered. Laboratory experiments supporting theoretical principles involving design, construction, and analysis of combinational and sequential digital circuits and systems, including logic gates, adders, multiplexers, encoders, decoders, arithmetic logic units, latches, flip-flops, registers, and counters; and preparation of laboratory reports.
Prerequisites: TSI complete in Reading and completion of MATH 1414 with a grade of "C" or better or equivalent.