ENGINEERING (ENGR)

ENGR 111: Engineering Orientation I (3)
Introduces engineering as a profession, engineering curricula, and career paths. Explores the engineering design process, including ways of approaching and defining design problems; assessing stakeholder needs, ideation and concept generation; and prototyping and experimental design
Terms Typically Offered: Fall

ENGR 112: Problem Solving and Technology (3)
Systematic approaches to engineering problem solving using computers, spreadsheets, logical analysis, flow charting, input/output design, introductory computer programming.
Registration-Enforced Prerequisite: ENGR 111.
Terms Typically Offered: Winter

ENGR 201: Electrical Fundamentals I (4)
Introduces students to basic circuit elements and circuit analysis techniques. Covers Ohm's and Kirchhoff's Laws, network theorems, node voltage analysis and mesh current analysis. Operational amplifiers, inductors, capacitors, RC and RL transient response are also covered. Circuit simulation, math analysis software, and laboratory experiments are incorporated to solidify classroom theory and practice.
Corequisite: MTH 251.
Terms Typically Offered: Fall

ENGR 202: Electrical Fundamentals II (4)
Covers RLC circuits, transformers, AC power, and three-phase power. Explores steady state sinusoidal analysis and phasor techniques. Introduces the Laplace Transform. Also incorporated is circuit simulation, math analysis software, and laboratory experiments to solidify classroom theory and practice.
Corequisite: MTH 252.
Terms Typically Offered: Winter

ENGR 203: Engr Fund-Signals and Controls (4)
Covers transient circuit analysis-RL, RC, RLC. Introduces LaPlace Transform and its use in circuit analysis, the transfer function, Bode diagram and two port networks.
Registration-Enforced Prerequisite: ENGR 202.
Terms Typically Offered: Spring

ENGR 211: Statics (4)
Analysis of forces induced in structures and machines by various types of loading. Introduction to finite element analysis software used for solving complex static problems. Use of graphing calculators and/or computer software will be expected of students.
Registration-Enforced Prerequisite: MTH 112Z and Corequisite: MTH 251.
Terms Typically Offered: Fall

ENGR 212: Dynamics (4)
Kinematics, Newton's laws of motion, and work-energy and impulse-momentum relationships applied to engineering systems.
Prerequisite: ENGR 211, MTH 251.
Terms Typically Offered: Winter

ENGR 213: Strength of Materials (4)
Properties of structural materials; analysis of stress and deformation in axially loaded members, circular shafts, and beams and in statically indeterminate systems containing these components.
Prerequisite: ENGR 211.
Terms Typically Offered: Winter

ENGR 245: Engineering Graphics (3)
This course is an introduction to technical graphics as used for the communication of concepts in design and manufacturing, with practical applications using solid modeling software to capture design intent and to generate engineering drawings. SolidWorks is the computer software used for the course
Terms Typically Offered: Spring

ENGR 271: Digital Logic Design (3)
Provides an introduction to digital logic and state machine design. Covers logic design, including logic gates, gate minimization methods and design with standard medium scale integration (MSI) logic circuits. Includes basic memory elements (flip-flops) and their use in simple-state machines.
Registration-Enforced Prerequisite: ENGR 201.
Terms Typically Offered: Spring

ENGR 272: Digital Logic Design Lab (1)
A lab to accompany ENGR 271 Digital Logic Design. Illustrates the topics covered in ENGR 271 using computer-aided design, verification tools and photocopying hardware.
Registration-Enforced Prerequisite: ENGR 201.
Terms Typically Offered: Spring