ENGINEERING TECHNOLOGY (EGT)

EGT-124 Strength of Materials (4)

Presents design and analysis of bars, beams, trusses, shafts, connectors, columns, and other structural members under various loadings. Covers stress, strain, deflection and geometric dimensions of various mechanical components. Includes thin walled pressure vessels, Poison effect, thermal stresses, combined loads, eccentric loads, statically indeterminate loads, buckling loads and Mohr's Circle of Stress. Utilizes Excel software and laboratory activities. Arts & Sciences Elective Code: B
Hours per week: 3.0 lecture, 2.0 lab

Prerequisite: Take EGT-125.

EGT-125 Applied Statics (4)

Analyzes forces and moments necessary to produce static equilibrium for bodies at rest. Covers vectors, free body diagrams, the equations of equilibrium, analysis of simple structures (trusses, frames, and simple machines), friction (wedges, screws, belts, rolling wheels), fluid statics, hanging cables, centroids and area moments of inertia. Arts & Sciences Elective Code: B
Hours per week: 3.0 lecture, 2.0 lab

Prerequisite: Take PHY-190.

EGT-132 Kinematics (4)

Covers terminology, classification, analyses and design of planar mechanisms, stressing graphical techniques with CAD software. Focuses on position, velocity (relative and instant center methods) and acceleration for a variety of mechanisms, typically containing 4-bar or slider/crank linkages. Emphasizes modeling of mechanisms using computer software with design and analysis applications as time allows. Arts & Sciences Elective Code: B
Hours per week: 2.0 lecture, 4.0 lab

Prerequisite: Take EGT-125.

Corequisite: Take CAD-141.

EGT-136 Dynamics (4)

Uses problem solving to deepen student's understanding of the geometry of motion (kinematics) and the forces that create it (kinetics). Solves problems involving planar motion of both particles and rigid bodies. Analyzes the kinetics of planar motion will using Newton's Second Law, Work/Energy, and Impulse/Momentum methods. Uses PC based software as an analysis and visualization tool. Arts & Sciences Elective Code: B
Hours per week: 3.0 lecture, 2.0 lab

Prerequisite: Take EGT-125.

EGT-148 Hydraulics and Basic Circuits (3)

Introduces the use of hydraulic pumps and systems, and basic electronic circuit design, including analysis techniques for both. Emphasizes using Kirchhoff's Laws and Ohms Law to analyze circuits. Covers pumping, controlling, measuring flows, designing and analyzing hydraulic systems. Focuses on distinguishing between types of valves, pumps, hose and connection arrangements, flow patterns, as well as basic circuit parts, such as resistors, capacitors, switches and inductors. Introduces basic terminology and schematic drawing symbols for both hydraulics and circuit elements. Arts & Sciences Elective Code: B
Hours per week: 2.0 lecture, 2.0 lab

EGT-185 Design Project (3)

Offers the opportunity to use creativity in designing specific products. Begins with a basic concept and progresses through analytic stage involving calculations and solid modeling. Includes solid modeling, final assembly and detail drawings and bill of materials. Arts & Sciences Elective Code: B
Hours per week: 2.0 lecture, 2.0 lab

Prerequisite: Take CAD-330. Take DRF-141.

EGT-195 Machine Design (3)

Focuses on problem solving involving size, shape and material requirements of machine parts. Applies various loading conditions to the machine components. Focuses on analyzing plates, shafts, weldments, fasteners, springs, wire rope and bearings. Arts & Sciences Elective Code: B
Hours per week: 2.5 lecture, 1.0 lab

Prerequisite: Take EGT-124.

EGT-400 PLTW - Introduction to Engineering Design (3)

Examines the engineering design process through application of math, science and engineering standards to hands-on projects. Students design solutions to problems using 3D modeling software and create an engineering notebook. Arts & Sciences Elective Code: B
Hours per week: 1.0 lecture, 4.0 lab

EGT-410 PLTW - Principles of Engineering (3)

Explores engineering topics including mechanisms, the strength of structures and materials, and automation. Develops problem solving, research and design skills and strategies for design process documentation, collaboration and presentation. Arts & Sciences Elective Code: B
Hours per week: 1.0 lecture, 4.0 lab

EGT-420 PLTW - Digital Electronics (3)

Provides a foundation in electrical engineering, electronics and circuit design. Covers combinational and sequential logic, and circuit design tools including logic gates, integrated circuits and programmable logic devices. Arts & Sciences Elective Code: B
Hours per week: 1.0 lecture, 4.0 lab

EGT-460 PLTW - Civil Engineering and Architecture (3)

Explores the design and construction of residential and commercial building projects. Investigates careers in the design and construction industry. Introduces concepts involved in building design and construction including land use, codes, utilities and services, sustainable design, building components and systems, structural design, storm water management, and cost estimation. Integrates STEM (Science, Technology, Engineering, Math) principles and teaches Revit, an Autodesk 3D design software for course projects. Arts & Sciences Elective Code: B
Hours per week: 1.0 lecture, 4.0 lab

EGT-924 Honors Project (1)

Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean
Hours per week: 1.0 lecture

EGT-928 Independent Study (1-3)

Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Arts & Sciences Elective Code: B; Comments: Permission of instructor, dean
Hours per week: 1.0 lecture