ENGINEERING MECHANICS (EMCH)

EMCH 111, STATICS FOR TECHNOLOGY 3 (5)
Principles of statics, conditions for equilibrium concepts and analysis of force systems acting on rigid bodies in two-dimensional applications and basic analysis of forces on members of trusses, frames, and machines are studied. Frictional forces in limiting equilibrium, applications of concurrent force systems in space (3D), centroid and moment of inertia of plain areas are covered. Laboratory required. (A special fee will be assessed.) (TAG)
General Education: IN1
Course Entry Requirement(s): Prerequisite: MTHM 121
Typically Offered: Fall and Spring Semesters

EMCH 112, ENGINEERING MATERIALS 3 (4)
This course covers the properties, structure, and technical information that a technician needs to know to select appropriate materials and treatment processes that could be used in engineering applications. Also covered are the limitations and production processes of plastics, metals, ceramics, composites, cemented carbides, and other materials and variety of testing methods used for selection and specifying design specifications. Laboratory required. (A special fee will be assessed.) (TAG)
General Education: IN1
Course Entry Requirement(s): Course placement policy: Grade of C or higher in MTHM 033 or satisfactory placement assessment score in mathematics
Typically Offered: Spring Semester

EMCH 211, STRENGTH OF MATERIALS 4 (6)
Analysis of physical properties, strength characteristics, stress development, deformations and failure limits of engineering materials used in different types of loading and support conditions in engineering applications. Commercial catalogs and standard specifications will be used in lab settings. Laboratory required. (A special fee will be assessed.) (TAG)
General Education: IN1
Course Entry Requirement(s): Prerequisite: EMCH 111 and previous or concurrent enrollment in MTHM 122
Typically Offered: Fall and Spring Semesters

EMCH 221, MACHINE DESIGN 3 (5)
Mechanical design analysis and selection of machine components such as couplings, shafts, gears, bearings, springs, belts, etc. for power transmission assemblies using standard specifications and manufacturer's catalogs is covered. Computer software programs may be used in design labs. Laboratory required. (A special fee will be assessed.)
General Education: IN1
Course Entry Requirement(s): Prerequisite: EMCH 211 and PHYC 151
Typically Offered: Spring Semester

EMCH 231, ENGINEERING STATICS 3 (3)
This course covers the vector mechanics applications in 2D and 3D, and analysis of static forces and force systems to maintain equilibrium of solid objects, structures, cables, and beams in real engineering applications. Also covered are applications frictional forces, internal reactions, shear and bending moments, centroids and moment of inertia. (TAG)
General Education: IN1
Course Entry Requirement(s): Prerequisite: MTHM 182 and PHYC 151
Typically Offered: Spring Semester