

Engineering

Engineering Graphics and Design

ENGIN 1101 - 3 Credits

This is an introductory-level course in engineering graphics and design intended for mechanical, civil, and industrial engineering majors. It provides students with skills in basic drafting, spatial visualization, conceptual design, and the latest engineering software. The course's graphics topics include orthographic projection, pictorials, dimensioning, sectioning, tolerances, and assembly drawings utilizing free hand sketching, two-dimensional computer aided design, and solid modeling. The course's design topics include problem definition, functional analysis, generation of design alternatives, and evaluation. Basic shop operations are introduced. Prerequisite: Mathematics 0482 with a grade of C or better, or equivalent or a qualifying score on the mathematics placement test or a qualifying A.C.T. math score (2 lecture hour, 3 lab hours)

Selected Topics I

ENGIN 1820 - 1-3 Credits

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college course schedule. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 3 lecture hours)

Independent Study

ENGIN 1840 - 1-4 Credits

Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 4 lecture hours)

Statics

ENGIN 2201 - 3 Credits

This course studies the internal forces that develop inside a structure or machine in equilibrium due to applied external forces. The course's topics begin with force vectors, moment vectors, distributed loads, particle equilibrium, and rigid body equilibrium in two and three dimensions. These concepts are applied toward the analysis of trusses, frames, machines, and beams. The course's topics conclude with a study of centroids, moments of inertia, friction, and virtual work. This course is intended for mechanical, civil, and industrial engineering majors. Prerequisite: Mathematics 2231 with a grade of C or better or equivalent and concurrent enrollment in Physics 2111 is required. (3 lecture hours)

Dynamics

ENGIN 2202 - 3 Credits

This is an advanced course that studies the motion of an object or system under the action of forces. The course's topics include kinematics and kinetics of particles and rigid bodies in two and three dimensions, non-Cartesian coordinate systems, absolute and relative motion, force, mass, acceleration, work, energy, impulse, momentum, and vibration. This course is intended for mechanical, civil, and industrial engineering majors. Prerequisite: Engineering 2201 with a grade of C or better or equivalent and Physics 2111 with a grade of C or better or equivalent. (3 lecture hours)

Mechanics of Materials

ENGIN 2203 - 3 Credits

Analysis of stress, strain and deflection in machine and structural elements (axial, shear, torsion and bending loads). Stress and strain transformation using Mohr's Circle. Combined loading, repeated loading, theories of failure, related mechanical properties, and column buckling. Design of shafts, beams and columns. Elementary stress measurement devices. Prerequisite: Engineering 2201 (3 lecture hours)

Engineering Thermodynamics

ENGIN 2205 - 3 Credits

Analysis of thermodynamic processes and systems. Engineering implications of the properties of ideal and real gases and vapors in thermal systems. Zeroth, first and second laws of thermodynamics, power and refrigeration systems, entropy and vapor power systems. Prerequisite: Mathematics 2233 or college equivalent (3 lecture hours)

Circuit Analysis and Theory

ENGIN 2210 - 4 Credits

An introduction to engineering circuit analysis and design. Topics include basic laws and concepts of linear circuits, analysis of direct current and alternating current circuits by mesh and nodal analysis, the operational amplifier, the inductor and capacitor, transients analysis, phasors, impedance, average and root-mean-square values, power and transfer functions. Hands-on lab is included. Prerequisite: Mathematics 2270 or college equivalent and Physics 2112 or consent of instructor (3 lecture hours, 2 lab hours)

Engineering

Introduction to Digital Systems

ENGIN 2213 - 4 Credits

An introduction to computer engineering. Digital circuit design with discrete and integrated circuit components. Binary arithmetic, codes, bases, number systems, logic elements and Boolean functions. Analysis and synthesis of combinational and sequential networks. Digital computer basics, machine level programming and microprocessors. Includes hands-on lab. A programming course or programming experience is recommended. Prerequisite: Course requires Reading Placement Test Score-Category Three (3 lecture hours, 2 lab hours)

Advanced Selected Topics I

ENGIN 2820 - 1-3 Credits

Advanced exploration and analysis of selected topics with a specific theme indicated by course title listed in college course schedule. This course may be taken four times for credit as long as different topics are selected. Prerequisite: At least one course in the discipline or consent of instructor. (1 to 3 lecture hours)

Internship (Career & Technical Ed)

ENGIN 2860 - 1-4 Credits

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship Advanced (Career & Tech Ed)

ENGIN 2865 - 1-4 Credits

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship (Transfer)

ENGIN 2870 - 1-4 Credits

Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship - Advanced (Transfer)

ENGIN 2871 - 1-4 Credits

Continuation of Internship (Transfer). Course requires participation in work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.