

ENGINEERING (ENGR)

ENGR 100 Introduction to Engineering (3 semester hours)

This course is designed to introduce basic concepts relevant to engineering and to promote interest in the profession. The course seeks to establish a solid foundation of technical, creative, teamwork, and communication skills for engineers through effective problem solving, analysis, and design techniques. Corequisite: ENGR 190

ENGR 160 Algorithms and Applications (3 semester hours)

The development of algorithms for the computer solution of engineering problems and the implementation of the algorithms using MATLAB.

ENGR 190 Engineering Seminar (1 semester hour)

Students are exposed to the different disciplines through a variety of speakers active in the profession.

ENGR 198 Special Studies (0-3 semester hours)

ENGR 199 Independent Studies (1-3 semester hours)

ENGR 200 Statics (3 semester hours)

Resultants of force systems, free-body diagrams, equations of equilibrium and their applications, analysis of trusses, centroids and moments of inertia, shear and moment diagrams. Prerequisites: MATH 234 or concurrent enrollment, PHYS 101.

ENGR 278 The Science of the Automobile (3 semester hours)

An introduction to today's automotive technology, and the science that supports it, using a systems approach to automotive design. Automotive design, function, and features are discussed, along with the manufacturing process involved in automotive construction and the effect of globalization on the automotive industry. Prerequisite: MATH 101 or higher, or placement into MATH 106 or higher.

ENGR 298 Special Studies (1-3 semester hours)

ENGR 299 Independent Studies (1-3 semester hours)

ENGR 300 Fundamentals of Engineering (FE) Exam (0 semester hours)

A review of topics in mathematics, science, and engineering in preparation for the Fundamentals of Engineering (FE) Examination. Students must register for and take the Fundamentals of Engineering (FE) Examination. Junior standing required.

ENGR 398 Special Studies (1-3 semester hours)

ENGR 399 Independent Studies (1-3 semester hours)

ENGR 400 Senior Seminar (0 semester hours)

Presentations emphasizing ethics; economics; societal, political, and global issues; lifelong learning; and contemporary engineering issues. Senior standing required.

ENGR 498 Special Studies (1-3 semester hours)

ENGR 499 Independent Studies (1-3 semester hours)

ENGR 1200 Computational Engineering (2 semester hours)

An introduction to the fundamental concepts and practices in modern computer programming, including expressions, conditional statements, loops, functions, data modeling, and debugging. Programming experiences emphasize the cultivation of 3 computational skills that can be applied to the analysis, modeling, and design of engineering systems.

ENGR 1300 Engineering Visualization (2 semester hours)

Introduction to engineering drawing and sketching as a tool for design communication. Development of three-dimensional (3D) visualization skills for engineering analysis and design. Use of computer-aided design (CAD) software packages for the creation of 3D parametric solid models. Presentation of 3D geometry using two-dimensional (2D) engineering drawings. Creating orthographic planar projections from 3D isometric views, including sections, dimensioning, tolerances, and abbreviations. Reading and interpreting professional grade drawings (blueprints) used in industry. Industry examples from Mechanical, Civil and Architectural Engineering will be presented. Teamwork and effective communication are emphasized.

ENGR 2001 Statics (2 semester hours)

Course focuses on the equilibrium of rigid bodies and simple structures at rest under the action of forces. Students will learn fundamental techniques including free body diagrams, resultants of force systems, equations and conditions of equilibrium and their applications. Simple structures include plane trusses, frames, and beams with concentrated loads. An introduction to distributed forces will include centroids, moments of inertia, and shear and moment diagrams. Prerequisite: PHYS 1100 and previous or concurrent enrollment in either MATH 132 or MATH 234.