

ENGINEERING SCIENCE (ECE)

ECE102 / Engineering Analysis Tools and Techniques

2 Credits / 4.0 Periods for Lecture & Lab

Learning culture of engineering, engineering use of computer tools, and computer modeling as applied to engineering analysis and design. Prerequisites: A grade of C or better in MAT15+ or higher-level mathematics course, or permission of Instructor or Division or Department Chair.

Division: Physical Sciences and Engineering

ECE103 / Engineering Problem Solving and Design

2 Credits / 4.0 Periods for Lecture & Lab

Fundamentals of the design process: engineering modeling, communication and problem-solving skills in a team environment. Emphasis on process-based improvements to the design process. Introduction to engineering as a profession. Prerequisites: A grade of C or better in ECE102 or permission of Instructor or Division or Department Chair. Course Notes: Student may receive credit for only one of the following: ECE103 or ECE103EP.



SUN# EGR 1102

Division: Physical Sciences and Engineering

ECE105 / MATLAB Programming

1 Credit / 2.0 Periods for Lecture & Lab

Use MATLAB to solve engineering problems. An overview of programming, including matrices, structures, strings, functions, control flow, file management, data analysis, graphing capabilities, and mathematical calculations. Prerequisites: A grade of C or better in [(MAT150 or MAT151 or MAT152 or MAT155 or MAT156) and MAT182] or MAT187 or higher level mathematics course or permission of Instructor or Division or Department Chair.

Division: Physical Sciences and Engineering



ECE150 / Exploring Engineering and its Impact on Society

3 Credits / 3.0 Periods for Lecture

Introduction to the profession of engineering and its impact on culture and society. Prerequisites: None.

Division: Physical Sciences and Engineering

ECE211 / Engineering Mechanics-Statics

3 Credits / 2.0 Periods for Laboratory, 3.0 Periods for Lecture

Modeling of static equilibrium in particles and rigid bodies through analysis of forces and mechanical properties. Prerequisites: A grade of C or better in PHY115 or PHY121 or permission of Instructor or Division or Department Chair. Corequisites: MAT230 or MAT231 or permission of Instructor or Division or Department Chair.

Division: Physical Sciences and Engineering

ECE212 / Engineering Mechanics-Dynamics

3 Credits / 2.0 Periods for Laboratory, 3.0 Periods for Lecture

Kinematics and kinetics of particles, translating and rotating coordinate systems, rigid body kinematics, dynamics of systems of particles and rigid bodies, and energy and momentum principles. A grade of C or better required in all Prerequisites. Prerequisites: [ECE211 and (PHY115 or PHY121)] or permission of Instructor or Division or Department Chair. Prerequisites or Corequisites: MAT240 or MAT241 or permission of Instructor or Division or Department Chair.

Division: Physical Sciences and Engineering

ECE215 / Mechanics of Materials

3 Credits / 5.0 Periods for Lecture & Lab

Designed to provide students with a strong fundamental foundation in the mechanics of solids. Includes the concepts of stress and strain applied to the analysis and design of members subjected to axial and torsional loads and members subjected to shear and bending, applications and transformation of plane stress and plane strain, deformation of beams, and elastic buckling of columns. Prerequisites: A grade of C or better in ECE211 or ECE214 or permission of Instructor or Division or Department Chair.

Division: Physical Sciences and Engineering

ECE216 / Computer-Aided Engineering

2 Credits / 2.0 Periods for Lecture

Introduction to engineering graphics, including tolerancing and fasteners, as well as creation and use of engineering drawings. Prerequisites: A grade of C or better in ECE103, or ECE103EP, or permission of Instructor or Division or Department Chair. Corequisites: ECE216LL.

Division: Physical Sciences and Engineering

ECE216LL / Computer-Aided Engineering Laboratory

1 Credit / 2.0 Periods for Laboratory

Laboratory experience in support of ECE216. Prerequisites: A grade of C or better in ECE103, or ECE103EP, or permission of Instructor. Corequisites: ECE216.

Division: Physical Sciences and Engineering

ECE280 / Foundational Statistics for Engineers

3 Credits / 5.0 Periods for Lecture & Lab

Fundamentals of probability, descriptive statistics, sampling distributions, parameter estimation, tests of hypotheses, regression analysis, analysis of variance, and design of experiments. Prerequisites: A grade of C or better in MAT220, or MAT221, or equivalent.

Crosslisted: MAT280

Division: Physical Sciences and Engineering