

# Engineering (EGR)

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## **EGR 110. Introduction to Engineering Technology. 2.0 Credits.**

Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces general topics relevant to engineering technology. Topics include career assessment, professional ethics, critical thinking and problem solving, usage of college resources for study and research, and using tools for engineering computations. Upon completion, students should be able to choose a career option in engineering technology and utilize college resources to meet their educational goals.

## **EGR 120. Engineering and Design Graphics. 3.0 Credits.**

Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces the graphical tools for engineering and design communications. Emphasis is placed upon selecting the appropriate methods and tools and conveying ideas using sketches, orthographic views and projections, and computer graphics applications. Upon completion, students should be able to communicate essential features of two-dimensional and three-dimensional objects using the proper tools and methods.

## **EGR 125. Applications Software for Tech. 2.0 Credits.**

Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course introduces personal computer software and teaches students how to customize the software for technical applications. Emphasis is placed on the use of common office applications software programs such as spreadsheets, word processing, graphics, and internet access. Upon completion, students should be able to demonstrate competency in using applications software to solve technical problems and communicate the results in text and graphical formats.

## **EGR 150. Introduction to Engineering. 2.0 Credits.**

Class-1.0. Clinical-0.0. Lab-2.0. Work-0.0

This course is an overview of the engineering profession. Topics include goal setting and career assessment, ethics, public safety, the engineering method and design process, written and oral communication, interpersonal skills and team building, and computer applications. Upon completion, students should be able to understand the engineering process, the engineering profession, and utilize college resources to meet their educational goals.

Corequisites: Take ACA 122; Take MAT 171 MAT 172 or MAT 271

## **EGR 212. Logic System Design I. 3.0 Credits.**

Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides an introduction to digital circuits and analysis. Topics include Boolean Algebra; mixed logic; design of combinational circuits; introduction to sequential systems; and MSI building blocks. Upon completion, students should be able to analyze and design digital circuits and systems.

Prerequisites: Take EGR 150

## **EGR 220. Engineering Statics. 3.0 Credits.**

Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course introduces the concepts of engineering based on forces in equilibrium. Topics include concentrated forces, distributed forces, forces due to friction, and inertia as they apply to machines, structures, and systems. Upon completion, students should be able to solve problems which require the ability to analyze systems of forces in static equilibrium.

Prerequisites: Take EGR 150

Corequisites: Take MAT 272

## **EGR 228. Introduction to Solid Mechanics. 3.0 Credits.**

Class-3.0. Clinical-0.0. Lab-0.0. Work-0.0

This course provides an introduction to engineering theory of deformable solids and applications. Topics include stress and deformation resulting from axial, torsion, and bending loads; shear and moment diagrams; Mohr's circle of stress; and strain and buckling of columns. Upon completion, students should be able to analyze solids subject to various forces and design systems using a variety of materials.

Prerequisites: Take EGR 220

## **EGR 250. Statics/Strength of Mater. 5.0 Credits.**

Class-4.0. Clinical-0.0. Lab-3.0. Work-0.0

This course includes vector analysis, equilibrium of force systems, friction, sectional properties, stress/strain, and deformation. Topics include resultants and components of forces, moments and couples, free-body diagrams, shear and moment diagrams, trusses, frames, beams, columns, connections, and combined stresses. Upon completion, students should be able to analyze simple structures.

Prerequisites: Take MAT 121 or MAT 171, minimum grade of C

## **EGR 251. Statics. 3.0 Credits.**

Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the concepts and principles of statics. Topics include systems of forces and moments on structures in two- and three-dimensions in equilibrium. Upon completion, students should be able to analyze forces and moments on structures. This course covers the concepts and principles of statics. Topics include systems of forces and moments on structures in two- and three- dimensions in equilibrium. Upon completion, students should be able to analyze forces and moments on structures.

## **EGR 252. Strength of Materials. 3.0 Credits.**

Class-2.0. Clinical-0.0. Lab-2.0. Work-0.0

This course covers the principles and concepts of stress analysis. Topics include centroids, moments of inertia, shear/moment diagrams, and stress and strain. Upon completion, students should be able to perform a stress and strain analysis on structural components. This course covers the principles and concepts of stress analysis. Topics include centroids, moments of inertia, shear/moment diagrams, and stress and strain. Upon completion, students should be able to perform a stress analysis and strain analysis on structural components.

Prerequisites: Take EGR 251