

ENGINEERING: PRE-PROFESSIONAL (EGR)

All EGR courses numbered 100 and above may be applied to the major field and elective requirement for the Associate in Arts, Associate in Science and Associate in Engineering Science degrees.

EGR 100 Introduction to Engineering (2) 2,0

Introduction to the study of and practices within the engineering profession. History of engineering, engineering specializations, engineering ethics, problem solving skills, design processes, professional practices, technical and written communications, and computer tools.

ABET licensing and teamwork will be explored through discussion, readings, research, hands on projects, guest lectures, and seminars by practicing engineers from various fields. (1.1) Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$306 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: Grade of C or better in HS physics or HS chemistry or consent of instructor

Semester(s) Offered: Fall and Spring

EGR 101 Engineering Design Graphics/Cad (4) 2,4

This course is an introduction to engineering design and graphics, including design problems, sketching, dimensioning, tolerancing, multi-view orthographic representations, auxiliary views, section views, and working drawings. Students are required to use CAD in this course. Sketching and CAD techniques are integrated in this course. (1.1) IAI Major: EGR 941 Proficiency Credit Available (3 ETSIR) Pass/No Credit Not Available.

In-District Tuition/Fees: \$632 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: MTH 098 or MTH 099 or concurrent enrollment in MTH 098 or MTH 099

Semester(s) Offered: Fall and Spring

EGR 152 Statics (3) 2,2

Analysis of force systems by means of vector algebra and graphical methods, treatment of two and three dimensional static equilibrium; analysis of forces acting on members of trusses, frames, and pulleys; forces due to friction on inclined planes, belts and wedges; distributed forces, analysis of structures, determination of moments of inertia, and centroids and virtual work methods. (1.1) IAI Major: EGR 942 Proficiency Credit Available (2 LETSIR) Pass/No Credit Not Available.

In-District Tuition/Fees: \$439 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: (1) Grade of C or better in MTH 190 and; (2) Grade of C or better in PHY 211 or concurrent enrollment in PHY 211

Semester(s) Offered: Fall

EGR 172 Mechanics of Materials (3) 3,0

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 and elementary stress measurement devices. (1.1) Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$414 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: EGR 152

Semester(s) Offered: Spring

EGR 192 Engineering Thermodynamics (3) 3,0

Analysis of thermodynamic processes and systems. Properties of ideal and real gases and vapors in thermal systems. Zeroth, first and second laws of thermodynamics. Entropy, heat engines, power and refrigeration cycles. (1.1) Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$414 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: MTH 210 and PHY 211

Semester(s) Offered: Summer

EGR 252 Dynamics (3) 3,0

A study of force and motion, including particle and rigid body kinematics in translation and rotation in a plane; relationships of force, mass, acceleration, work and energy, impulse and momentum. (1.1) IAI Major: EGR 943 Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$414 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: Grade of C or better in EGR 152, and grade of C or better in MTH 210 or concurrent enrollment in MTH 210

Semester(s) Offered: Spring

EGR 272 Circuit Analysis and Theory (4) 3,2

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. (1.1) Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$692 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: PHY 212 and MTH 210

Semester(s) Offered: Spring

EGR 292 Introduction to Digital Systems (4) 3,2

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 lab. (1.1) Proficiency Credit Not Available Pass/No Credit Not Available.

In-District Tuition/Fees: \$692 (effective 2025/26 academic year)

In-district tuition rates are subject to change based on Board approval.

Prerequisite: EGR 272 and MTH 230 Recommended: A programming course or programming experience

Semester(s) Offered: Spring