

Engineering (EGR)

EGR 499 Special Topics in Engineering 1-6 Credit
Individual independent or directed studies of selected topics.

Courses

EGR 100 Spatial Visualization 1 Credit (2,0)

This course is an introduction to spatial thinking, graphical representation and communication. As a foundation course, it aims to expose students to spatial thinking concepts and to provide them with the basic knowledge and technical skills required to envision three dimensional structures, visualize and think in three dimensions, and to analyze and solve specific spatial thinking problems using sketching, digital modeling, and physical modeling. As students learn to think spatially, they will start to see and understand the world around them in new and useful ways. Students will explore ideas individually, share these ideas with others, and work in groups.

Prerequisites: PSVT:R score of 17 or lower

EGR 101 Introduction to Engineering 2 Credits (2,0)

A project-based, design experience for engineering majors. Introduces the interdisciplinary aspects of engineering through team projects.

EGR 105 Introductory Problems for Engineering Applications 3 Credits (3,0)

This course will provide an overview of the math topics most heavily used in the core sophomore-level engineering courses. All math topics are presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses. This course introduces the engineering analysis software MATLAB.

Prerequisites: Math Placement of MA 143 **Corequisites:** EGR 105L

EGR 105L Introductory Problems for Engineering Applications Laboratory 1 Credit (0,2)

Experiments paralleling the material in EGR 105. Topics include mathematical applications in engineering (algebra, trigonometry, vectors, complex numbers, equations, matrices, derivatives, integrals, and differential equations).

EGR 111 Engineering Drawing 2 Credits (2,0)

Freehand pencil sketching for graphical communication of engineering designs. Standard forms for design graphic and view layout, orthographic projection, section and auxiliary views, dimensioning, tolerancing, and introduction to shop processes. This course is not equivalent to EGR 120.

EGR 115 Introduction to Computing for Engineers 3 Credits (3,0)

Introductory course to computer programming. Algorithm design and software development including specification of the problem, design of a solution, implementation of code, and testing. Applies problem-solving approaches to developing algorithms. Data types and related operations; looping; decision; input/output; functions; arrays; and files.

Corequisites: MA 112 or MA 241

EGR 120 Graphical Communications 3 Credits (2,2)

Students will use free-hand pencil sketching and CAD as tools for graphical communication of engineering designs. Standard form for design graphics and view layout, orthographic projection, section and auxiliary views, dimensioning, tolerancing, introduction to shop processes.

Prerequisites: PSVT:R score of 18 or higher

EGR 199 Special Topics in Engineering 1-6 Credit

Individual independent or directed studies of selected topics.

EGR 299 Special Topics in Engineering 1-6 Credit

Individual independent or directed studies of selected topics.

EGR 305 3D-CADD and Engineering Documentation 3 Credits (3,0)

Application and use of high-end computer-assisted drafting, design, and analysis tool (CATIA) to engineering challenges. Applications of CATIA workbenches: the product specification tree, knowledge-ware, parametric design, part and assembly design, modification, document release and control, final drawings, and changes.

Prerequisites: EGR 120 and ES 201 and ES 204

EGR 399 Special Topics in Engineering 1-6 Credit

Individual independent or directed studies of selected topics.