EGR 130  Engineering Technology Applications and Programming (2-3-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: MAT 102
Co-requisite: RDG 100
This course covers the development and use of computer programs to solve engineering technology problems, including spreadsheets, databases, word processing and operating systems. Analytical problem solving using calculators and computers as preparation for physics and statics courses is also covered.

EGR 170  Engineering Materials (2-3-3)
Offered Fall and Spring Semesters
Co-requisites: ENG 101 and MAT 102 or suitable math placement (required)
This course is a study of the properties, material behaviors, and applications of materials used in engineering structures and products. The mechanical properties and the classification systems of metals, ceramics, plastics and composites are covered. Studies start with the forces that bind atoms together and proceed up through crystal structure to macroscopic properties. Includes techniques for improving the strength of materials, with heavy emphasis on the heat treatment of steel.

EGR 175  Manufacturing Processes (2-4-3)
Offered Spring and Summer Semesters
Pre- or Co-requisites: ENG 101 and MAT 110 (prerequisite preferred)
Co-requisite: EGR 210 or EGR 275 or EGT 152 or other department head approved CAD course (required)
This course includes the processes, alternatives, and operation in the manufacturing environment. The most important methods used by modern industry to convert materials into useful shape, including numerous variants of casting, forging, rolling, extruding, pressing and sintering, molding, joining, machining and grinding. Emphasis will be placed on types of parts for which each process is best suited.

EGR 194  Statics and Strength of Materials (2-6-4)
Offered Fall, Spring, and Summer Semesters
Prerequisite: PHY 201
Pre- or Co-requisite: MAT 111 or MAT 179 (prerequisite preferred)
This course covers external and internal forces in structures and/or machines, including conditions of equilibrium, systems of force, moment of inertia and friction. It also covers the stress/strain relationships in materials, centroids, shear and moment diagrams, bending stresses and shear stresses with application to size determination of components under various loading conditions.

EGR 210  Introduction to Engineering CAD (2-3-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: CPT 170 or EGR 130 or EGR 269, or instructor permission
This course is a study of basic computer-aided design concepts required for engineering, architectural, surveying, construction, and related industry applications. 2D and 3D AutoCAD applications are introduced in this course.

EGR 255  Engineering Technology Senior Systems Project (0-6-2)
Offered Spring Semester
Prerequisite: EGR 194 and completion of all other technical courses in the program in which the student is majoring, plus department head approval.
This course includes an instructor-approved project which is designed, specified, constructed and tested. Students work in teams on “real world” industrial, mechanical, or manufacturing projects and solve them by applying skills learned in previous program courses.

EGR 275  Introduction to Engineering/Computer Graphics (2-3-3)
Offered Fall, Spring, and Summer Semesters
Prerequisite: CPT 170 or EGR 130 or EGR 269, or permission of instructor
A pre-engineering university transfer course. This course is a study of basic graphical concepts needed for engineering applications. This course emphasizes mechanical applications utilizing 3D SolidWorks as the CAD software.
EGT 110  Engineering Graphics I  (2-6-4)
Offered Fall, Spring, and Summer Semesters
Prerequisite: Placement into RDG 032 and placement into MAT 101
This is an introductory course in engineering graphics science, which includes beginning drawing techniques and development of skills to produce basic technical drawings.

EGT 115  Engineering Graphics II  (2-6-4)
Offered Fall and Spring Semesters
Prerequisite: EGT 110
Co-requisite: EGR 210 or EGR 275
This course in engineering graphics science includes additional drawing techniques for industrial applications.

EGT 119  Geometrics  (3-0-3)
Offered Summer Semester
Prerequisites: EGT 115, and EGR 210 or EGR 275
This course provides the student with an in-depth knowledge of both the interpretation of geometric dimensioning and tolerancing symbols, and the inspection techniques (conventional and X, Y, Z coordinate measuring machines) necessary to determine if parts meet the specification required by the drawing.

EGT 127  Descriptive Geometry for Drafters  (3-0-3)
Offered Summer Semester
Prerequisites: EGT 110, and EGR 210 or EGR 275
This basic course in descriptive geometry covers the theory of orthographic projection, points and lines in space, auxiliary views, planes, intersections and developments.

EGT 210  Engineering Graphics III  (2-6-4)
Offered Fall Semester
Prerequisites: EGT 115, and EGR 210 or EGR 275
This advanced course in engineering graphics science covers the production of technical working drawings. This course is a project-based survey of basic mechanical and electrical engineering technology applications. The design process is explored with the results being presented as a set of technical drawings.

EGT 215  Mechanical Drawing Applications  (2-6-4)
Offered Fall Semester
Prerequisites: EGT 115, EGT 119, and EGR 275
This advanced drawing course covers industrial applications. Provides an in-depth study of the mechanical design process. This includes analysis calculations, vendor catalogs, GD&T, and the creation of a complete drawing package for manufacture of a consumer product or industrial machine.

EGT 220  Structural & Piping Applications  (2-6-4)
Offered Spring Semester
Prerequisites: EGT 115 and EGR 275
This advanced drawing course covers structural steel and process piping applications. These tools are used by engineers in order to design and build systems in a wide variety of commercial and industrial applications.

EGT 245  Principles of Parametric CAD  (2-3-3)
Offered Fall Semester
Prerequisite: EGR 210, or EGR 275, or permission of instructor
This course is the study of 3-D product and machine design utilizing state-of-the-art parametric design software. This course is an introduction to CATIA V5 3D CAD software.

EGT 252  Advanced CAD  (2-3-3)
Offered Spring Semester
Prerequisite: EGR 275
This course covers advanced concepts of CAD software and applications. This course constitutes part two of Solid Works. Advanced features of this design software are covered.