

CGS ENGINEERING (CGS EGR)

CGS EGR 103 Engineering Spreadsheet Tools

0-1 cr.

Fundamental spreadsheet tools for use in engineering schooling and future career. Introduction to computers, flow charts, spreadsheets, functions, graphics, curve fitting, logical statements, statistical analysis, unit conversion, and other data analysis techniques.

Prerequisites: Students may not receive credit for both CGS EGR 103 and CGS EGR 105. Students who complete both CGS EGR 102 and CGS EGR 103 will receive the AP/IS designation of CGS EGR 105.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 105 Engineering Fundamentals

3 cr.

This course is designed to equip engineering students with the necessary tools and background information to prepare them to be successful engineering students as well as a successful practicing engineer.

Topics covered in this course include project management, team work, technical writing, working with data and using spreadsheets, creating presentations, engineering design, and a thorough understanding of the engineering profession. A student may not receive credit for CGS EGR 100 or CGS EGR 102 or CGS EGR 103 and CGS EGR 105.

Prerequisites: CGS MAT 105 or concurrent enrollment.

General Education Requirements: AP, IS

Last Taught: Spring 2023, Fall 2022.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 110 Engineering Graphics with Computer Aided Drafting

3 cr.

Graphical communication, descriptive geometry elements, visualization, engineering drawing techniques, orthographic projection, pictorial representation, auxiliary views, section views, and basic dimensioning. Incorporates computer aided drafting CAD with engineering applications using 2-D drawing and 3-D modeling techniques.

Prerequisites: none.

Course Rules: Previously CGS GRA 110.

General Education Requirements: AP

Last Taught: Spring 2023, Fall 2022.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 111 Solid Modeling and Design

1 cr.

This project-based course introduces students to reverse engineering and three-dimensional design using industry standard solid modeling software SolidWorks. The course assumes some previous knowledge of solid modeling, such as would typically be gained in an introductory engineering graphics and computer aided drafting course. This course will include one or more reverse engineering projects that will require the students application of engineering problem skills.

Prerequisites: none.

General Education Requirements: AP

Last Taught: Spring 2020, Fall 2019.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 201 Statics

3 cr.

Principles of mechanics, force systems, equilibrium, structures, distributed forces, moments of inertia of areas, and friction. The course will serve the requirements of the several engineering curricula.

Prerequisites: C or better in CGS MAT 221 or cons instr.

Course Rules: Previously MEC 201.

General Education Requirements: NS

Last Taught: Spring 2023, Fall 2022.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 202 Dynamics

3 cr.

Kinematics, force-mass-acceleration relations, work and energy, impulse and momentum, and moments of inertia of mass. This course will serve the requirements of the several engineering curricula.

Prerequisites: a grade of C- or better in CGS EGR 201 and a grade of C or better in CGS MAT 232; or consent of instructor.

Course Rules: Previously MEC 202.

General Education Requirements: NS

Last Taught: Spring 2022, Spring 2021.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 203 Mechanics of Materials

3-5 cr.

Stress and strain, torsion, bending of beams, compound stresses, principal stresses, deflection of beams, statically indeterminate members, columns, elastic buckling, fatigue, creep, impact, and concrete properties.

Prerequisites: Grade of C or better in CGS EGR 201 or consent of instructor.

General Education Requirements: NS

Last Taught: Spring 2021, Fall 2020.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 240 Introduction to Engineering Programming

3 cr.

Introduction to engineering programming; problem solving with structured programming techniques using an engineering-oriented programming language such as MATLAB. Topics include control structures, functions, arrays and matrices.

Prerequisites: Math Placement Level 30, which is earned by any of the following: (a) Level 30, 35, or 36 on Math Placement Test; (b) grade of C or better in CGS MAT 105, CGS MAT 108 or 116; (c) score of 5 or higher on the IB Mathematical Studies - SL; (d) score of 3 or higher on the AP statistics exam; or (e) score of 63 or higher on the CLEP College Algebra Exam.

Course Rules: CGS CPS 240 and CGS EGR 240 are jointly offered and count as repeats of one another. Equivalent to COMPSCI 240.

Last Taught: Spring 2023, Fall 2021.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 263 Engineering Thermodynamics

3 cr.

First and second laws of thermodynamics; thermodynamic properties of real and ideal gases, vapors, and mixtures; analysis of power and refrigeration cycles.

Prerequisites: CGS CHE 145 or CGS CHE 165 or CGS PHY 201 or CGS EGR 202, and CGS MAT 223 or CGS MAT 234 or concurrent enrollment, or cons. instr.

General Education Requirements: NS

Last Taught: Spring 2020.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 282 Engineering Economics

3 cr.

Economic and financial factors in the engineering environment to be considered in managerial decision making. Emphasizes the time value of money, present worth analysis, uniform series, rate of return, benefit cost ratios, depreciation, income taxes, inflation.

Prerequisites: CGS MAT 110, CGS EGR 105 or CGS EGR 103 or CGS CPS 107 or consent of instructor.

Last Taught: Summer 2020, Spring 2020.

Current Offerings: <https://catalog.uwm.edu/course-search/>

CGS EGR 291 Special Topics in Engineering

1-3 cr.

In-depth coverage of one or more topics in engineering, engineering graphics, or engineering mechanics not covered by an existing course. Topics related to current issues or new technology are particularly appropriate.

Prerequisites: none.

Last Taught: Summer 2022, Summer 2021.

Current Offerings: <https://catalog.uwm.edu/course-search/>