

General Engineering (GNEG)

Courses

GNEG 1010 Engineering Professionalism and Career Development: 0 semester hours.

This course prepares students for the professional engineering world. Provides career planning tools; discusses expected behaviors and soft (power) skills essential for engineering career success. The connection between personal, professional, and financial goals and how such goals contribute to short- and long-term personal, professional, academic, and financial goals. Professional, ethical, and moral behavior and proper communication for the workplace. This course enables engineers to take full advantage of internships, co-ops, engineering jobs, and the classroom.

Co-requisites: CHEG 1101, COMP 1101, CVEG 1101, ELEG 1101, MCEG 1101.

GNEG 1111 Engineering Applications Lab I for Mathematics: 1 semester hour.

Practical applications of Algebra and Trigonometry for problems in engineering, computer science, and technology. Algebra and Trigonometry concepts will be reinforced through hands-on, physical application in the laboratory.

Co-requisite: MATH 1115.

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GNEG 1112 Engineering Lab II for Mathematics: 1 semester hour.

Practical applications of the 1st level Calculus for problems in engineering, computer science, and technology. The 1st level Calculus concepts will be reinforced through hands-on, physical application in the laboratory.

Co-requisite: MATH 1124.

GNEG 2102 Engr Lab III for Math: 1 semester hour.

Practical applications of the 2nd level Calculus for problems in engineering, computer science, and technology. The 2nd level Calculus concepts will be reinforced through hands-on, physical application in the laboratory.

GNEG 2115 Engineering Research I: 1 semester hour.

Research methodology course, the content of which includes an introduction to scientific method, formulation of research question, development and implementation of research plan, analysis and evaluation of results, and reporting of findings.

GNEG 2615 Engineering Cooperative Education I: 6 semester hours.

A cooperative program of engineering with an approved engineering-based industry, engineering consulting firm, or governmental regulatory agency engaged in planning and administration of engineering functions. The student receives related engineering assignments in a real work situation. The assignment is commensurate with the theoretical engineering experience of the student.

GNEG 3106 Introduction to Engineering Project Management: 1 semester hour.

Principles and techniques of managing engineering and software projects. Topics include project initiation, estimating, resource allocation, developing work plans, scheduling, progress tracking, design coordination, production coordination, quality management, managing teams and close out, and case study of real world projects.

Prerequisites: CHEG 2308 or CHEG 2003.

GNEG 3115 Engineering Research II: 1 semester hour.

This is a course of research activities consisting of library, laboratory, or other research activities on selected problems. Results of the research are presented in formal, oral, and written presentations.

Prerequisites: GNEG 2151 or GNEG 2115.

GNEG 3615 Engineering Cooperative Education II: 6 semester hours.

A cooperative program of engineering with an approved engineering-based industry, engineering consulting firm, or governmental regulatory agency engaged in planning and administration of engineering functions. The student receives related engineering assignments in a real work situation. The assignment is commensurate with the theoretical engineering experience of the student.

GNEG 5189 Research: 1 semester hour.

Methods and practice in research.

GNEG 5302 Operations Research: 3 semester hours.

An introduction to quantitative modeling and optimization; linear and dynamic programming; queueing theory; inventory modeling; critical path systems; network flow modeling and technological forecasting.

GNEG 5304 Engineering Probability and Statistics: 3 semester hours.

Theory of permutations, combinations; statistical principles of analysis of random data probability as a basis of engineering design.

GNEG 5306 Engineering Analysis I: 3 semester hours.

Introduction to multi-variable calculus. Application of mathematical techniques to various engineering disciplines using linear partial differential equations-boundary value and initial value problems; Linear Optimization techniques.

GNEG 5307 Engineering Analysis II: 3 semester hours.

Complex variable theory using techniques such as conformal mapping, optimization and boundary value analysis, in engineering applications such as control systems and signal processing. Introduction to fractals (fractional dimensions) and their applications in geography and animation will be discussed.

Prerequisites: GNEG 5306 or GNEG 5063.

GNEG 5313 Engineering Numerical Methods: 3 semester hours.

Numerical methods in engineering include fundamental numerical techniques involving recursion relationships, numerical quadratures, etc., applied to engineering problems. Emphasis will be placed on the solution of advanced engineering problems involving ordinary and partial differential equations. Proven and efficient finite methods will be covered with emphasis on engineering conceptualization and formulation. An introduction to finite elements analysis.

GNEG 5319 Special Topics: 3 semester hours.

Special topics in engineering relating to materials, renewable and non-renewable resources, environmental and energy fields are selected and discussed in detail. Considers all aspects of planning, design fabrication, development and implementation.

GNEG 5320 Graduate Internship: 3 semester hours.

A realistic experience in engineering to enhance the student's professional abilities. Students work on significant projects with industry firms or governmental agencies involving decision-making responsibility. Course requires oral and written report.

GNEG 5330 Graduate Project: 3 semester hours.

A study, design, or investigation, under the direction of a graduate faculty advisor. An oral presentation and a written report are required. Prerequisite: candidacy for the Non- Thesis-Option of the Master of Science in Engineering degree.

GNEG 5389 Research: 3 semester hours.

Methods and practice in research.

GNEG 5399 Independent Study: 1-3 semester hour.

Readings, research and/or field work on selected topics.

GNEG 5608 Thesis: 6 semester hours.

A candidate for the Master Science in Engineering is required to perform a study, design or investigation, under the direction of a faculty advisory committee. A written thesis is required to be presented, defended orally and submitted to the faculty advisory committee for approval.

GNEG 5689 Research: 6 semester hours.

Methods and practice in research.