

# GENERAL ENGINEERING (GNEN)

## GNEN 5000 Graduate Launch

[0-2 credit hours]

The courses addresses specific requirements for graduate degrees in COE as well as more general requirements for successful careers as professional engineers. Content to be discussed includes University paperwork and progress towards degree; professionalism; research initiation (literature searches, research database, endnote); professional writing; career preparation; and developing professional relationships.

**Term Offered:** Spring, Fall

## GNEN 5200 Advanced Mechanical Design

[3 credit hours]

Design and application of mechanical components and machine elements including shafts, gears, gear drives, belt drives, chain drives, fasteners, power screws, clutches, brakes and machine frames.

**Term Offered:** Spring, Summer, Fall

## GNEN 5500 Applications of Engineering Analysis

[3 credit hours]

A course in analysis for engineers. Topics include: Linear differential equations, continuous and discrete series representation. Laplace transforms, matrix methods, eigenvalues and eigen vectors, systems of equations.

**Term Offered:** Spring, Fall

## GNEN 5700 Applied Probability and Statistics

[3 credit hours]

An introduction to the application of descriptive and inferential statistics. Topics include probability distributions, confidence intervals, tests of hypotheses, linear regression and correlation and the use of statistical software.

**Term Offered:** Spring

## GNEN 6200 Environmental Efficiency for Buildings

[3 credit hours]

This course is an in-depth study of the latest advances in efficient energy and environmental design and operation of commercial, industrial, and institutional building as defined by the United States Green Building Council. Topics include selection of building sites considering the interaction with mass or local transportation, water efficiency of both potable and waste water streams, energy efficiency as it relates to the building systems and construction including lighting and power generation, atmospheric effects including combustion wastes and refrigerant selection, building construction materials that reflect sustainable resources, and building indoor air quality. Upon completion, students are prepared to take the accreditation exam for LEED-GA, LEED-AP or both from the USGBC.

**Term Offered:** Spring, Fall

## GNEN 6300 Energy Management for Facilities

[3 credit hours]

This course provides students with a working knowledge of energy management as it applies to industrial, commercial, and institutional entities; buildings, processes, equipment, and systems. It involves the strategic evaluation of energy use and planning for energy efficiency. This course prepares the student for executing duties of a certified energy manager in facilities management for entities that have appreciable energy and power requirements. The course follows a national program of preparedness to take the Certified Energy Managers exam from the Association of Energy Engineers (AEE CEM Certification). An energy manager evaluates energy use and designs energy programs that increase efficiency and reduce energy-related costs. They design processes, retrofit buildings and equipment, and plan energy-related systems for new projects. Energy managers may be responsible for improving the efficiency of combustion systems, lighting, water systems, and electrical power.

**Term Offered:** Summer, Fall

## GNEN 6700 Management of Projects and Technological Innovation

[3 credit hours]

Study of industry project management principles, methodologies, and processes while integrating the advancement of technological innovation to execute a project on time and on budget. The course incorporates real time industry project case studies while blending in the traditional techniques of using project management standards and templates, scheduling and cost tools, project selection and organizational development, work management and asset management. Applications to the energy and utility sectors, including project manager interactions with private industry and government/regulatory bodies, are used to highlight project management concepts and define leadership styles.

**Term Offered:** Fall

## GNEN 6920 Special Projects in Engineering

[1-6 credit hours]

A special project is intended for the graduate student to investigate or solve a problem in an engineering area. The scope of the project is defined by the instructor in an area of mutual interest of the instructor and the student.

**Term Offered:** Spring, Summer, Fall

## GNEN 6980 Special Topics in Engineering

[0-6 credit hours]

A special topic at the graduate level in engineering to be offered as a course during a term by a faculty member.

**Term Offered:** Spring, Summer, Fall