General Engineering (GNEG)

Courses

GNEG 1103. Introduction to Engineering. 3 Hours.
This introductory course for first year engineering students introduces them to the fields of engineering and many of the modeling and problem solving techniques used by engineers. It also introduces the students to the engineering profession and some of the computer tools necessary for pursuing a degree in engineering. This course is designed for current and future transfer students. Freshman engineering students on campus should select GNEG 1201 or GNEG 1111 as appropriate. Pre- or Corequisite: MATH 1203 or MATH 1204 or MATH 1213 or MATH 1284C or MATH 2445 or MATH 2554 or MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603. Corequisite: Engineering major. (Typically offered: Fall, Spring and Summer)

GNEG 1111. Introduction to Engineering I. 1 Hour.
Fundamentals of engineering problem-solving including skills from mathematics, science, and computing. Introduction to the engineering design process through team-based activities. Study of the contemporary engineering profession and the disciplines within the College of Engineering. Corequisite: Drill component and MATH 1284C or MATH 2445 or MATH 2554 or MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603 or GNEG 1514. Prerequisite: Engineering First Year majors only. (Typically offered: Fall and Spring)

GNEG 1111H. Honors Introduction to Engineering I. 1 Hour.
Fundamentals of engineering problem-solving including skills from mathematics, science, and computing. Introduction to the engineering design process through team-based activities. Study of the contemporary engineering profession and the disciplines within the College of Engineering. Corequisite: Drill component and MATH 1284C or MATH 2445 or MATH 2554 or MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603 or GNEG 1514. Prerequisite: Engineering First Year majors only and Honors College students only. (Typically offered: Fall and Spring)

GNEG 1121. Introduction to Engineering II. 1 Hour.
Further study of engineering problem-solving including skills from mathematics, science, and computing. Experience with the engineering design process through a major, team-based project. Selecting a major within the College of Engineering. Discussion of academic and professional opportunities for engineering students. Corequisite: Drill component and MATH 2445 or MATH 2554 or MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603. Prerequisite: GNEG 1111 or GNEG 1111H or GNEG 1514 and Engineering First Year majors only. (Typically offered: Fall and Spring)

GNEG 1121H. Honors Introduction to Engineering II. 1 Hour.
Further study of engineering problem-solving including skills from mathematics, science, and computing. Experience with the engineering design process through a major, team-based project. Selecting a major within the College of Engineering. Discussion of academic and professional opportunities for engineering students. Corequisite: Drill component and MATH 2445 or MATH 2554 or MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603. Prerequisite: GNEG 1111H or GNEG 1111 or GNEG 1514, Engineering First Year majors only and Honors College students only. (Typically offered: Fall and Spring)

This course is equivalent to GNEG 1111.

GNEG 1201. Fundamentals of Success in Engineering Study. 1 Hour.
Assisting Engineering First Year students in developing skills for successful completion of engineering course work. Building a supportive learning community, assisting students in developing positive attitudes and productive behaviors resulting in both academic and personal success, and informing students of the resources available for maintaining their academic and personal wellness. Corequisite: Drill component and MATH 1204 or MATH 1203 or MATH 1284C. Prerequisite: Engineering First Year student only. (Typically offered: Fall and Spring)

GNEG 1311H. Honors Research Experience I. 1 Hour.
An initial undergraduate research experience for a select group of Engineering First Year students enrolled in the Honors College. Corequisite: GNEG 1111H and MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603. (Typically offered: Fall)

GNEG 1321H. Honors Research Experience II. 1 Hour.
Continuation of GNEG 1311H culminating with the annual Freshman Engineering Program Honors Research Symposium. Pre- or Corequisite: MATH 2564. Prerequisite: GNEG 1311H. (Typically offered: Spring)

GNEG 1411H. Honors Innovation Experience I. 1 Hour.
An initial undergraduate innovation experience for a select group of Engineering First Year students enrolled in the Honors College. Corequisite: GNEG 1111H and MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603. (Typically offered: Fall)

GNEG 1421H. Honors Innovation Experience II. 1 Hour.
Continuation of GNEG 1411H. Prerequisite: GNEG 1411H and honors standing. (Typically offered: Spring)

GNEG 1503. Pre-Engineering Applications of Mathematics. 3 Hours.
Overview of the basic algebra and trigonometry skills used in engineering. All topics are motivated by engineering applications. Prerequisite: Departmental consent. (Typically offered: Irregular)

GNEG 1514. Engineering Applications of Mathematics. 4 Hours.
Overview of the mathematics topics heavily used in sophomore-level engineering courses. Topics include algebraic analysis, trigonometry, vectors and complex numbers, sinusoids and harmonic signals, systems of equations and matrices, differentiation, integration, and differential equations. All topics motivated by engineering applications. Usage of mathematical analysis software is emphasized. Prerequisite: (MATH 1203 or MATH 1204) or at least 46 on the Math Placement Test or a score of at least 23 on the math component of the ACT or a score of at least 540 on the math component of the old SAT or 570 on the new SAT. (Typically offered: Fall and Spring)

GNEG 190V. Special Topics. 1-5 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular)

GNEG 290V. Special Topics. 1-5 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular)

GNEG 3103H. Honors Globalization and Innovation. 3 Hours.
Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. (Typically offered: Irregular)

GNEG 3113. Special Topics-Study Abroad. 3 Hours.
Students travel abroad to gain a global perspective on a particular facet of the engineering discipline. Students are required to complete pre-travel investigative or background assignments, participate in all activities of the actual trip and will produce a post travel reflective or comparative product relative to the special topic. Prerequisite: Instructor consent. (Typically offered: Irregular) May be repeated for up to 9 hours of degree credit.
GNEG 3712H. Honors Research Experience I. 2 Hours.
Introduction to the research of the faculty of the College of Engineering for the purpose of matching students with an undergraduate research advisor. Development of skills in using electronic resources to conduct background research on individuals and topics in the engineering academic community. Development of an undergraduate research white paper with a corresponding presentation. Prerequisite: Honors College and ENGR students only, and instructor consent. (Typically offered: Spring)

GNEG 3801. Parallel Cooperative Education. 1 Hour.
Part time supervised experience in industry where students apply classroom skills to problems specific to their discipline in a professional workplace setting. Credit may not be applicable to degree programs in engineering. Prerequisite: Instructor permission. (Typically offered: Fall, Spring and Summer)

GNEG 3811. Alternating Cooperative Education. 1 Hour.
Full time supervised experience in industry where students apply classroom skills to problems specific to their discipline in a professional workplace setting. Application of credit to a degree program is at the discretion of the department owning the degree program. Prerequisite: Instructor consent. (Typically offered: Fall, Spring and Summer) May be repeated for up to 3 hours of degree credit.

GNEG 390V. Special Topics. 1-4 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular) May be repeated for up to 4 hours of degree credit.

GNEG 390VH. Honors Special Topics. 1-4 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular) May be repeated for up to 4 hours of degree credit. This course is equivalent to GNEG 390V.

GNEG 490V. Special Topics. 1-4 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular) May be repeated for up to 4 hours of degree credit.

GNEG 490VH. Honors Special Topics. 1-4 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent. (Typically offered: Irregular) May be repeated for up to 4 hours of degree credit. This course is equivalent to GNEG 490V.

GNEG 5103. Globalization and Innovation. 3 Hours.
Integration of engineering in the globalized business environment. Innovation and integration models. Global survival skills. International organizational value-chain. Conducting business with emerging nations. Case studies; field trips; guest lectures. Experiential learning design component. Taken by students participating in departmental approved study abroad programs. (Typically offered: Irregular)

GNEG 550V. Master’s Research Project. 1-3 Hour.
Required course for MSE students who wish to complete a Master’s research project as part of their degree program. Prerequisite: Instructor permission. (Typically offered: Irregular)

GNEG 5801. Parallel Cooperative Education. 1 Hour.
Part time supervised experience in industry where students apply focused, discipline specific, classroom and research skills to problems directly related to their area of study in a professional workplace setting. May be repeated for up to 3 hours of non-degree credit. Prerequisite: Instructor permission. (Typically offered: Fall, Spring and Summer)