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.

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.

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. This course is equivalent to GNEG 1111.

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.

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. This course is equivalent to GNEG 1121.

GNEG 1122. Introduction to CAD. 2 Hours.
General course in the use of engineering drawings for communications and design. Proper use of computer for computer-aided drafting and design; 2-dimensional, 3-dimensional, and solid modeling; use of manual drafting equipment; geometrical exercises; orthographic projections; auxiliary view; sketching; dimensioning. Corequisite: Lab component. Pre- or Corequisite: MATH 1213 or higher.

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.

GNEG 1301H. Honors Research Colloquium. 1 Hour.
Exploration of topics and processes associated with academic research in the engineering profession. Offered to a select group of Engineering First Year students enrolled in the Honors College. Corequisite: GNEG 1311H and MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603.

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.

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.

GNEG 1401H. Honors Innovation Colloquium. 1 Hour.
Exploration of topics and processes associated with innovation, entrepreneurship, and design in the engineering profession. Offered to a select group of Engineering First Year students enrolled in the Honors College. Corequisite: Drill component, GNEG 1411H and MATH 2564 or MATH 2574 or MATH 2584 or MATH 3083 or MATH 2603.

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.

GNEG 1421H. Honors Innovation Experience II. 1 Hour.
Continuation of GNEG 1411H. Pre- or Corequisite: MATH 2564. Prerequisite: GNEG 1411H and honors standing.

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.

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 a score of 80% or better on the Preparedness for Algebra Exam 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.

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

GNEG 290V. Special Topics. 1-5 Hour.
Consideration of current engineering topics not covered in other courses. Prerequisite: Instructor's consent.
GNEG 3103. 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. May not earn credit for GNEG 4103 or GNEG 5103.

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. May not earn credit for GNEG 4103 or GNEG 5103.

This course is equivalent to GNEG 3103.

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. May be repeated for up to 9 hours of degree credit.

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.

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. 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. 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. May be repeated for up to 4 hours of degree credit.

This course is equivalent to GNEG 390V.

GNEG 4103. 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. May not earn credit for GNEG 3103 or GNEG 5103.

GNEG 4103H. 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. May not earn credit for GNEG 3103 or GNEG 5103.

This course is equivalent to GNEG 4103.