General Engineering Courses

**Engineering Ethics Values Courses**

**ENEV 1952. Ethics and Values Colloquium 1. 1 cr. hr.**
The colloquium consists of a series of lectures, films, and discussions involving social problems with significant technical components, societal values and engineering ethics. S/U grade assessment.

**ENEV 2952. Ethics and Values Colloquium 2. 1 cr. hr.**

**ENEV 3952. Ethics and Values Colloquium 3. 1 cr. hr.**
Consists of a series of lectures, films and discussions involving social problems with significant technical components, societal values and engineering ethics. S/U grade assessment. Prereq: ENEV 2952.

**ENEV 4952. Ethics and Values Colloquium 4. 1 cr. hr.**
Consists of a series of lectures, films and discussions involving social problems with significant technical components, societal values and engineering ethics. S/U grade assessment. Prereq: ENEV 3952.

**ENEV 4995. Independent Study. 1-4 cr. hrs.**
Undergraduate independent study project of either a theoretical or experimental nature. Prereq: Jr. stndg, 3.000 GPA, cons. of instr., and cons. of dept. ch.

**General Engineering Courses**

**GEEN 1120. Introduction to Engineering Graphics. 1 cr. hr.**
Practicing and understanding the engineering graphics fundamentals and application of computer-aided design (CAD), utilizing solid modeling software to develop typical industrial product 3-D models and drawings. Prereq: Enrolled in Engineering.

**GEEN 1130. Introduction to Engineering Computing. 1 cr. hr.**
Introduces students to an engineering programming environment and the corresponding algorithm and logic development. Students apply engineering computing techniques to solve selected engineering (model) equations and problems. Prereq: Enrolled in the College of Engineering.

**GEEN 1200. Engineering Discovery 1. 3 cr. hrs.**
Introduces students to engineering and engineers, engineering system investigation and modeling, and engineering graphics fundamentals and computer-aided design (CAD). The lecture and laboratory topics, contents and activities include engineering essentials and Fermi’s questions/problems, scientific and engineering dimensions and units, introduction to spreadsheet computing, engineering graphics fundamentals and computer-aided design (CAD), utilizing solid modeling software, and engineering system investigation through various department modules. Professionalism, teamwork and technical communication are stressed. Students participate in a team-based computer graphics design project at the end of the term. Prereq: Enrolled in the College of Engineering.

**GEEN 1210. Engineering Discovery 2. 3 cr. hrs.**
Introduces students to engineering problem solving, the engineering design process and engineering computing. The lecture and laboratory topics/contents and activities include engineering problem solving steps/procedures, introduction to the engineering design process, introduction to programming basics and their applications to scientific and engineering problems, and multidisciplinary engineering problem solving through various department modules. Professionalism, teamwork, and technical communication are stressed. Students participate in a team-based engineering design projects during the semester. Prereq: Enrolled in the College of Engineering and GEEN 1200.

**GEEN 2952. Professional Development for Engineers. 1 cr. hr.**
Objective is to assist engineering students with their career discernment and to promote professional development. Focuses on the skills needed to secure a job and provides resources and tools to conduct a job search. Topics include: professional development; engineering options; cooperative education and internship opportunities; ethics as well as job search, resume writing, interviewing, professional communication and networking techniques. All sophomore-level and transfer students required to attend. Prereq: Enrolled in the College of Engineering.

**GEEN 2960. Engineering Service Seminar. 0 cr. hrs.**
Consists of a series of lectures, video presentations and discussions involving engineering-related service learning. Reflection providing an awareness of an engineer’s professional responsibilities to the community at large, and future opportunities for such involvement at the local, national and/or international levels. SNC/UNC grade assessment.

**GEEN 2961. E-Lead 1: Foundations of Leadership and Individual Development. 1 cr. hr.**
Identifying and developing individual traits, skills, talents, behaviors, personal management and values which contribute to effective leadership, especially in the technical professions. Investigation of leadership theory and leadership styles and the influence of gender, culture, faith and ethical character. Personality assessments, case studies, readings, presentations, role-playing and simulations will be emphasized. Prereq: GEEN 2952, Soph. stndng., and enrolled in the E-Lead Program in the Opus College of Engineering and cons. of dept.
GEEN 3959. E-Lead Experience: Explorations in Engineering Leadership Practice. 1 cr. hr.
Develop skills and practices important for life-long learning related to personal leadership growth and development in the technical fields. Studies include selecting and reading E-Lead approved leadership texts and producing video book reports about the leadership texts; discussing other leadership texts and reports with peers in the class; identifying, arranging and participating in a leadership shadow experience with industry leaders in technical fields; and attending a week-long national leadership conference. Prereq: GEEN 2952, GEEN 2961 and Jr. stdng., and enrolled in the E-Lead Program in the Opus College of Engineering and cons. of dept.

GEEN 3961. E-Lead 2: Leading Others. 1 cr. hr.
Identifying and developing skills, talents, behaviors, and attributes which contribute to effective leadership of teams and projects, especially in the technical professions. Investigation into leading change, collaboration, motivating others, negotiation, conflict resolution, performance evaluation, communication, facilitation, emotional intelligence, diversity challenges, global and cultural awareness, servant leadership. Simulations, role-playing, case studies, readings, presentations, and team problem-solving will be emphasized. Prereq: GEEN 2952, GEEN 2961, Jr. stdng., and enrolled in the E-Lead Program in the Opus College of Engineering and cons. of dept.

GEEN 3990. E-Lead Experience: Professional Engineering Leadership Experience. 1 cr. hr.
Students in the E-Lead program are required to participate in an industry internship, co-op, research project or major service project. During these experiences, E-Leaders make observations and reflect on their experience through the three leadership themes of the E-Lead Program - leading oneself, leading with others, and leading technology and innovation. Upon completion of the experience, students submit a reflective and integrative paper about the experience in his/her role, responding to predetermined questions and citing specific examples from the professional engineering leadership experience to describe their observations and assertions. Prereq: GEEN 2952, GEEN 2961 and Jr. stdng., and enrolled in the E-Lead Program in the Opus College of Engineering and cons. of dept.

GEEN 3991. Co-Op Work Period 1. 0 cr. hrs.
Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 3991, 3992, etc. Fee. SNC/UNC grade assessment. Prereq: Enrolled in Opus College of Engineering and Co-op student.

GEEN 3992. Co-Op Grading Period 1. 1 cr. hr.
Grading for preceding co-op work assignments is accomplished by review of employer evaluation forms, work exit reports, and other materials as required during each term in school following a work period. No tuition is charged for grading periods. S/U grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 3991.

GEEN 3993. Co-Op Work Period 2. 0 cr. hrs.
Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 3991, 3992, etc. Fee. SNC/UNC grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 3992.

GEEN 3994. Co-Op Grading Period 2. 1 cr. hr.
Grading for preceding co-op work assignments is accomplished by review of employer evaluation forms, work exit reports, and other materials as required during each term in school following a work period. No tuition is charged for grading periods. S/U grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 3993.

GEEN 4961. E-Lead 3: Leading Technology and Innovation. 1 cr. hr.
Identifying and developing skills, talents, behaviors, and attributes which contribute to effective leadership of innovation and technology development in technical organizations. Investigation into leading change, strategic planning, marketing, competitive trends, benchmarking, product specification, financial planning, global and cultural markets, and ethical conduct. Simulations, case studies, readings, projects, presentations, and problem-solving will be emphasized. Prereq: GEEN 2952, GEEN 2961, GEEN 3961, Sr. stdng., must be taken concurrently with BIEN 4920, COEN 4920, ELEN 4920 or MEEN 4920, and enrolled in the E-Lead Program in the Opus College of Engineering and cons. of dept.

Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 3991, 3992, etc. Fee. SNC/UNC grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 3994.

GEEN 4992. Co-Op Grading Period 3. 1 cr. hr.
Grading for preceding co-op work assignments is accomplished by review of employer evaluation forms, work exit reports, and other materials as required during each term in school following a work period. No tuition is charged for grading periods. S/U grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 4991.

GEEN 4993. Co-Op Work Period 4. 0 cr. hrs.
Registration for approved cooperative education program work assignments is required of all co-op students. Grading and credits are accomplished in the accompanying following term when registered for courses numbered 3991, 3992, etc. Fee. SNC/UNC grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 4992.

GEEN 4994. Co-Op Grading Period 4. 1 cr. hr.
Grading for preceding co-op work assignments is accomplished by review of employer evaluation forms, work exit reports, and other materials as required during each term in school following a work period. No tuition is charged for grading periods. S/U grade assessment. Prereq: Enrolled in Opus College of Engineering, Co-op student and GEEN 4993.
GEEN 4995. Independent Study in General Engineering. 1-3 cr. hrs.
Undergraduate independent study project of either theoretical or experimental nature. Prereq: Jr. stndg., 3.000 GPA, cons. of instr., and cons. of dept.
ch.

GEEN 4998. E-Lead Experience: Capstone Project. 3 cr. hrs.
The culminating engineering leadership experience for students completing the concentration in engineering leadership. Taken concurrently with the
required senior design course, the student uses all knowledge and skills gained in the prerequisite E-Lead courses to intentionally develop both personal
leadership capacity and impact the people, processes and final product of the senior design team. Prereq: GEEN 3959, GEEN 3990, GEEN 4961, Sr.
stndg., and must be taken concurrently with BIEN 4998, COEN 4998, ELEN 4998, MEEN 4998 or CEEN 4998, and enrolled in the E-Lead program in
the Opus College of Engineering and cons. of dept.