

ENGINEERING

Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<https://one.uf.edu/soc/>)

Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.

Courses

CGN 2328 Technical Drawing and Visualization 3 Credits

Grading Scheme: Letter Grade

Two- and three-dimensional graphical methods of visualizing and communicating features of projects for construction involving parcel boundaries, topography, drainage, site modeling, site development, structures, buildings and objects using both traditional and computer-aided drafting and design techniques.

Prerequisite: minimum 2EG classification.

CGS 2531 Problem Solving Using Computer Software 3 Credits

Grading Scheme: Letter Grade

Problem-solving introduction and thorough exploration of word processing, spreadsheet management, data analysis, graphical display of data, and multimedia presentations. The problem-solving approach also aids students in their specific majors through software applications requiring major-specific professional communication skills in written, graphical, and presentation forms. (M)

Attributes: General Education - Mathematics

COP 2271 Computer Programming for Engineers 2 Credits

Grading Scheme: Letter Grade

Computer programming and the use of computers to solve engineering and mathematical problems. Emphasizes applying problem solving skills; directed toward technical careers in fields employing a reasonably high degree of mathematics. The programming language used depends on the demands of the departments in the college. Several languages may be taught each semester, no more than one per section. Those required to learn a specific language must enroll in the correct section. (M)

Prerequisite: MAC 2312 with minimum grade of C.

COP 2271L Computer Programming for Engineers Laboratory 1 Credit

Grading Scheme: Letter Grade

Optional laboratory for COP 2271. Required for ISE majors. (M)

Prerequisite: MAC 2312;

Corequisite: COP 2271.

COP 2273 Python Programming for Engineers 3 Credits

Grading Scheme: Letter Grade

Introduction for those who have little experience in programming and have been looking to obtain hands-on learning experience in the Python programming language. Encourages developing problem solving and computational thinking skills in an engineering field and emphasizes a reasonably high degree of mathematics.

Prerequisite: MAC 2311 with a C grade or better.

COP 2274 C++ Programming for Engineers 3 Credits

Grading Scheme: Letter Grade

Introductory course for those who have little experience in programming and have been looking to obtain a hands-on learning experience to the C++ programming language. Developing problem solving and computational thinking skills in an engineering field is encouraged in this course and emphasized with a reasonably high degree of mathematics.

Corequisite: MAC 2311.

EEL 3003 Elements of Electrical Engineering 3 Credits

Grading Scheme: Letter Grade

Introduces the theory and practice of electrical engineering for those not majoring in electrical engineering. Discusses circuits, machines, electronics and systems.

Prerequisite: MAC 2313 and PHY 2049.

EEL 3872 Artificial Intelligence Fundamentals 3 Credits

Grading Scheme: Letter Grade

Overview of Artificial Intelligence (AI), approaching the concept from its origins to expectations for the future; focuses on various AI technologies, how to build Machine Learning models, and how to apply AI tools to solve real world problems. Some concepts are types of AI and Machine Learning, Hacking and the IoT, AI today and its outlook for the future.

Prerequisite: Junior standing or above.

EGM 3400 Elements of Dynamics 2 Credits

Grading Scheme: Letter Grade

Dynamics of particles and rigid bodies for rectilinear translation, curvilinear motion, rotation and plane motion. Also includes principles of work and energy, and impulse and momentum.

Prerequisite: EGM 2511 and (MAC 2313 with a minimum grade of C).

EGN 1935 Special Topics in Freshman Engineering 1-3 Credits

Grading Scheme: Letter Grade

Laboratory, lectures or conferences cover selected topics in engineering.

EGN 2020C Engineering Design & Society 2 Credits

Grading Scheme: Letter Grade

Introduction to emphasizing the human-centered design process to address societal challenges. Explore solid modeling, introductory programming, sensors, data acquisition, and 3D printing as maker tools for engineering prototyping. In a team environment, utilize multidisciplinary approaches, project management, and written and oral communication skills to create societal-based designs.

Attributes: General Education - Physical Science

EGN 4641 Engineering Entrepreneurship 3 Credits

Grading Scheme: Letter Grade

Engineering Entrepreneurship introduces engineering students to the concepts and practices of technological entrepreneurial thinking and entrepreneurship. Using lectures, case studies, business plans and student presentations, the course teaches life skills in entrepreneurial thought and action that students can utilize when starting technology companies or executing research and development projects in large companies.

Prerequisite: Junior standing or higher.

EGN 4643 Engineering Innovation 3 Credits

Grading Scheme: Letter Grade

Engineering Innovation introduces students to the concepts of innovative thinking and innovation practices. Using lectures, case studies, team exercises and guest speakers, the course teaches life skills in innovative thought and action that students can use in careers ranging from starting companies to executing research and development projects in large companies.

Prerequisite: Junior standing or higher.

EGN 4912 Engineering Directed Independent Research 0-3 Credits

Grading Scheme: S/U

Provides firsthand, supervised research with a faculty advisor or postdoctoral or graduate student mentor. Projects may involve inquiry, design, investigation, scholarship, discovery, or application.

Prerequisite: Department permission.

EGN 4932 Special Topics 1-4 Credits

Grading Scheme: Letter Grade

Covers selected, rotating topics in engineering.

EGN 4940 NSF Fellowship Preparation 1 Credit

Grading Scheme: Letter Grade

Overview of fellowship preparation pertaining to intellectual merit and broader impacts.

EGN 4949 Engineering Internship/Co-op 1-3 Credits

Grading Scheme: S/U

Practical Internship/Co-Op Work Experience Under Approved Industrial Supervision.

Prerequisite: Engineering major.

EGN 4951 Integrated Product and Process Design 1 3 Credits

Grading Scheme: Letter Grade

A two-semester-course sequence in which multidisciplinary teams of engineering students partner with industry sponsors to design and build authentic products and processes—on time and within budget. Working closely with industry liaison engineers and a faculty coach, students gain practical experience in teamwork and communication, problem solving and engineering design, and develop leadership, management and people skills.

Prerequisite: prereqs are the same as the equivalent departmental capstone courses;

Corequisite: coreqs are the same as the equivalent departmental capstone courses.

EGN 4952 Integrated Product and Process Design 2 3 Credits

Grading Scheme: Letter Grade

A two-semester-course sequence in which multidisciplinary teams of engineering and business students partner with industry sponsors to design and build authentic products and processes—on time and within budget. Working closely with industry liaison engineers and a faculty coach, students gain practical experience in teamwork and communication, problem solving and engineering design, and develop leadership, management and people skills.

Prerequisite: EGN 4951.

EGN 4956 International Studies in Engineering 1-4 Credits**Grading Scheme:** Letter Grade

Provides a mechanism by which coursework taken as part of an approved study abroad program can be recorded on the UF transcript and counted toward graduation.

Prerequisite: admission to an approved UF study abroad program and undergraduate programs director permission through advising form.

EGS 1006 Introduction to Engineering 1 Credit**Grading Scheme:** Letter Grade

Introduces the 11 departments that offer undergraduate degrees at UF. Students break into groups of 20, rotating weekly through each department. During these visits, students participate in hands-on experiments to help them make informed decisions about career alternatives.

EGS 2036 Fundamentals of the New Engineer 1 Credit**Grading Scheme:** Letter Grade

Fundamentals of the New Engineer introduces students to key attributes of 21st century engineering leaders and innovators. Student learn concepts and practice of engineering leadership and innovation through study of the "Attributes of a New Engineer"; Creativity, Leadership, Integrity, Professional Excellence, and Service to the Global Community.

EGS 4034 Engineering Ethics and Professionalism 1 Credit**Grading Scheme:** Letter Grade

Provides an interactive study of ethical theory and the development of professionalism; review case studies of ethical conflicts in engineering practice. Also covers engineering codes of ethics to resolve theoretical situations through application of ethical codes.

Prerequisite: Undergraduate engineering or computer science (CLAS) students and junior level or above.

EGS 4038 Engineering Leadership 3 Credits**Grading Scheme:** Letter Grade

Engineering Leadership introduces engineering graduate students to the concepts, theory and practice of engineering leadership; effective written and oral communications and presentations; engineering leadership characteristics, individual differences and self-awareness; developing and building teams; managing change, conflicts, and crises; and understanding real-world ethics and core values.

Prerequisite: Junior standing or higher.

EGS 4100 Divergent Thinking 3 Credits**Grading Scheme:** Letter Grade

Acquire divergent thinking skills to support the engineering design process. Emphasizes the importance of practices such as observing, questioning, learning, and experimenting; Stresses cultivating an openness to new experiences In order to generate ideas and devise solutions to complex design problems.

Prerequisite: junior or senior level standing.

EGS 4619 Agile Project Management for Engineers and Scientists 3 Credits**Grading Scheme:** Letter Grade

Students will receive with a comprehensive understanding of the agile mindset, and why agility is often needed when managing complex-adaptive products and projects in a volatile and uncertain environment. The course promotes agile thinking and applications using the Scrum framework and identifies conditions that enable (and disable) personal and organizational agility.

Prerequisite: Junior or senior level status.

EGS 4625 Fundamentals of Engineering Project Management 3 Credits**Grading Scheme:** Letter Grade

Provides a comprehensive understanding of how to plan, optimize, and efficiently manage projects (or tasks) to implement products, services, or developments. Includes building the structure, processes, components, and linkages with a team for successful project delivery within schedule, budget, and quality requirements.

Prerequisite: Engineering student of junior standing or higher.

EGS 4680 Advanced Engineering Leadership Development 3 Credits**Grading Scheme:** Letter Grade

Further develops the leadership framework and capabilities; involves a case study-based instructional approach that reviews and applies strategic leadership concepts and knowledge critical to the success of engineering-based companies that operate in a highly uncertain and volatile business environment.

Prerequisite: EGS 4038 or instructor permission.

EML 3007 Elements of Thermodynamics and Heat Transfer 3 Credits**Grading Scheme:** Letter Grade

Applications of first and second laws of thermodynamics to closed and open systems. Steady one-dimensional conduction, lumped parameter analysis, convection, radiation. Intended for non-mechanical engineering students.

Prerequisite: CHM 2045 and MAC 2313 and PHY 2048.