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, Use-AI

COP 2271 Computer Programming for Engineers 2-3 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.
Prerequisite: MAC 2312 with minimum grade of C.
Attributes: Artificial Intelligence

COP 2271L Computer Programming for Engineers Laboratory 1 Credit
Grading Scheme: Letter Grade
Optional laboratory for COP 2271. Required for ISE majors.
Prerequisite: MAC 2312;
Corequisite: COP 2271.
Attributes: Artificial Intelligence

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.
Attributes: Artificial Intelligence

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
An overview of Artificial Intelligence (AI), approaching the concept from its origins to expectations for the future. The course will focus on various AI technologies, how to build Machine Learning models, and how to apply AI tools to solve real-world problems. Some concepts that will be introduced in the course are types of AI and Machine Learning, Hacking and the IoT, AI today, and its outlook for the future.
Prerequisite: Junior standing or above, or instructor permission.
Attributes: Artificial Intelligence

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.

EGN 4632 Advanced Engineering Entrepreneurship 3 Credits
Grading Scheme: Letter Grade
Advanced Engineering Entrepreneurship equips undergraduate engineering students with practical skills and foundational knowledge in technological entrepreneurship. Through interactive lectures, case studies, and collaborative presentations, students will learn to transform innovative ideas into viable ventures and apply entrepreneurial thinking to lead RD initiatives in technology-driven organizations and offers a deeper dive into the real-world process of launching and growing a company.
Prerequisite: Sophomore Standing or above and have completed (EGN4643 or EGN6642) with a minimum grade of a B or be actively pursuing a startup venture with a drafted pitch deck as approved by the instructor.

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 4647 Innovating for Space 3 Credits
Grading Scheme: Letter Grade
Innovating for Space is an experiential, non-design course where students work in cross-disciplinary teams to solve real aerospace and defense challenges from industry partners. Using Human-Centered Design and Mission Model Canvas methodologies, students create mission aligned innovative solution concepts and pitch their solution concepts to company partners and faculty at the end of the semester.
Prerequisite: Sophomore standing or higher.

EGN 4648 Innovating for Defense 3 Credits
Grading Scheme: Letter Grade
Innovating for Defense (I4D) is a credit-bearing, non-design course that applies the proven Lean LaunchPad methodology to real-world defense and national security challenges. Student teams collaborate to develop innovative solution concepts for critical problems submitted by Department of Defense (DoD) and Intelligence Community (IC) partners, gaining hands-on experience in entrepreneurial thinking, rapid prototyping, and stakeholder engagement.
Prerequisite: Sophomore 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.