FLORIDA POLYTECHNIC UNIVERSITY

EGN 1008 – Engineering Explorations

Fall 2026

Course Information

- **Course Number and Title**: EGN 1008 – Engineering Explorations
- **Credit Hours:** 3 Credit Hours
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Dr. Daniel Lopes da Silva
- **Office Location:** BARC 1180
- **Office Hours**: Mon, Tue, Wed 1:30 – 2:30 PM *or by Scheduled Appointment*
- **Email address**: dlopesdasilva@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode**: In-Person
  - **Lecture Time:** Tue, Thu, 11 AM – 12:15PM
  - **Lecture Location:** IST 1002

- **Official Catalog Course Description**: This hands-on course introduces students to the foundational principles of engineering through interdisciplinary challenges and problem-solving activities. Students will explore key topics from mechanical, electrical, civil, industrial, computer, environmental, and cybersecurity engineering. Alongside engineering fundamentals, students will develop essential technical skills such as data analysis and problem-solving using Excel, report formatting with LaTeX, and professional communication techniques. By integrating Excel into engineering problem-solving, the course emphasizes practical applications and builds computational confidence. This course aims to inspire creativity, foster collaboration, and develop the problem-solving mindset necessary for success in engineering.
  - **Course Pre-Requisites**: None
  - **Communication/Computation Skills Requirement (6A-10.030)**: No

- **Required Texts and Materials:**
  - **Textbook:** Exploring Engineering (6th), Robert Balmer & William Keat
    - ISBN: 9780443135415
  - **Other Materials:** Canvas, Computer or Tablet, Microsoft Teams, Scientific or Engineering Calculator, Florida Poly Email Address
  - **Note:** Only calculator models approved for use on the Fundamentals of Engineering (FE) Exam will be allowed in this course.
    - **Casio:** All fx-115 and fx-991 models
    - **Hewlett Packard:** The HP 33s and HP 35s models, but no others
    - **Texas Instruments:** All TI-30X and TI-36X models

Course Objectives and Outcomes

- **Course Objectives**: The primary objective of Engineering Explorations is to introduce students to the various fields of engineering while building foundational problem-solving skills. In this course, students will engage with foundational engineering principles, apply what they learn to introductory problems, develop professional communication skills, and cultivate an understanding of engineering ethics. Interactive lectures, hands-on activities, and reflective assignments will instill students with confidence as they advance into their respective self-selected engineering disciplines. Specifically, students will build proficiency in using Microsoft tools, working with LaTex, and referencing professional licensure materials to support their

future academic and professional success. By the end of the course, students will be able to approach open-ended problems with confidence, communicate technical ideas effectively, and demonstrate a broader awareness of the various paths within the engineering profession.

Course Learning Outcomes:

By the end of this course, student will be able to…

CLO 1. Identify the major branches of engineering and describe their core focus areas and real-world applications.

CLO 2. Apply foundational problem-solving techniques to analyze and address introductory engineering challenges.

CLO 3. Demonstrate proficiency in using Microsoft, Word, Excel, and PowerPoint for engineering data analysis and technical communication.

CLO 4. Reflect on personal growth and interests in engineering to make informed decisions about a future discipline or career path.

CLO 5. Evaluate ethical and professional responsibilities within engineering contexts using established ethical frameworks.

CLO 6. Interpret professional engineering licensure and career development resources (e.g., FE exam, NSPE, ASCE, IEEE).

Alignment with Program Outcomes:

Course Learning Outcome	Program Learning Outcome (ABET 1-7)
Identify the major branches of engineering and describe their core focus areas and real-world applications.	An ability to communicate effectively with a range of audiences. (ABET 3)
Apply foundational problem-solving techniques to analyze and address introductory engineering challenges.	An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Demonstrate proficiency in using Microsoft, Word, Excel, and PowerPoint for engineering data analysis and technical communication.	An ability to communicate effectively with a range of audiences. (ABET 3)
Reflect on personal growth and interests in engineering to make informed decisions about a future discipline or career path.	An ability to communicate effectively with a range of audiences. (ABET 3)
Evaluate ethical and professional responsibilities within engineering contexts using established ethical frameworks.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (ABET 4)
Interpret professional engineering licensure and career development resources (e.g., FE exam, NSPE, ASCE, IEEE).	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (ABET 4)

COURSE POLICIES

Attendance

Students are expected "to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor" (University Policy, FPU-5.0010AP). It is the student's responsibility to give the instructor notice prior to any anticipated absence and within a reasonable period after an unanticipated absence, ordinarily by the next scheduled class meeting.

Participation

Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for authorized accommodations). Students who routinely do not bring materials to class that are required for participation, will not be given credit for class attendance, and if this becomes a pattern of behavior, may be asked to leave the class for the day. Persistent problems with participation may result in a code of conduct referral.

Email Policy

Emails must be sent from your Florida Poly email account to the Florida Poly email address of the instructor (dlopesdasilva@floridapoly.edu). Please allow up to 36 hours on weekdays for a response, after which a student may send a follow-up email. Emails must be composed in a professional manner with a greeting, signature, and in an organized fashion. Start the subject line with "[EXPLORATIONS – F26]" for a quicker response time.

Assignment/Evaluation Methods

The instructor reserves the right to adjust grading at the end of the semester. The following list provides more detail about assignments for the course:

Attendance: Students are expected to be present for each lecture per the student handbook. Attendance will be taken at the start of each lecture. Overall attendance will be worth 10% of your final grade in the course.

In-Class Assignments: There will be in-class assignments that are due by the end of lecture, typically written by hand and turned into Canvas as a PDF. These assignments are meant to make you think, engage, question, and learn. These assignments will be collectively worth 10% of your final grade in the course.

Homework Assignments: You will have homework assignments throughout the semester (typically 1 assignment per week). These homework assignments will closely align with the content covered during lecture. Typically, homework assignments will be submitted to Canvas as PDF. These homework assignments will be collectively worth 20% of your final grade in the course.

Engineering Reflection Report: After we have explored all the engineering fields we offer as degree paths here at Florida Poly, you will be writing a report reflecting on what you have learned about engineering, your chosen degree program, and your peers' degree programs. More details about this project will be shared later in the semester. This report will be worth 20% of your final grade in the course.

Court Case Report: In order to connect engineering to ethics, you will be writing a research paper about a court case in your field where an engineer lost their license (or faced serious consequences) for ethical shortcomings. More details about this research paper will be shared later in the semester. This research paper will be worth 20% of your final grade in the course.

Final Report & Presentation: Your final project for this course will consist of a written report and an in-class presentation. You will each individually reflect and research on an engineered system that was designed by engineers from various fields. Being at the end of this semester, this project is meant to showcase what you have learned about technical communication in this course and reinforce the collaborative and integrated nature of engineering as a discipline. This project will be worth 20% of your final grade in the course.

Bonus Assignments: There may be additional opportunities throughout the semester by completing supplementary activities assigned by the instructor. These will be available at the instructors' discretion and will typically be offered to all sections of the course. Individual requests for additional assignments to improve a students' overall grade in the course will not be granted.

Grading Scale

Grading Scale (%)	
93-100	A
90-92	A-
86-89	B+
83-85	B
80-82	B-
76-79	C+
70-75	C
60-69	D
0-59	F

Grade Breakdown	
Attendance	10%
In-Class Assignments	10%
Homework Assignments	20%
Engineering Reflection Report	20%
Court Case Report	20%
Final Project	20%
Total	100 %

Note: Grades for each assignment will be posted to Canvas and students should make sure they are recorded correctly. However, there is no guarantee that the percentages or projected grades provided through Canvas are correct. The instructor will calculate final percentages and will determine final grades regardless of Canvas calculations.

Late Work/Make-up work

Late work will not be accepted in this course (in accordance with the attendance policy). No make-up options will be provided for in-class evaluations. Make-up opportunities will only be granted for exams in exceptional circumstances and at the discretion of the professor. Students are expected to reach out to the instructor well in advance of an exam or provide a valid justification if doing so ahead of time is not possible.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal, and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edy/disability.

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity
Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

Recording Lectures
Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is* ***prohibited****.*

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
    - **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing center.

Tentative Course Schedule

Week	Day	Date	Topic	Assigned
1	T	13-Jan	Course Introduction	
	R	15-Jan	What is Engineering?	"Get to Know" Assignment
2	T	20-Jan	Civil Engineering Overview	
	R	22-Jan	Civil Engineering Activity	Civil Engineering Homework
3	T	27-Jan	Environmental Engineering Overview	
	R	29-Jan	Environmental Engineering Activity	Environmental Engineering Homework
4	T	3-Feb	Mechanical Engineering Overview	
	R	5-Feb	Mechanical Engineering Activity	Mechanical Engineering Homework
5	T	10-Feb	**Career Day – NO CLASSES**	
	R	12-Feb	Other Engineering Disciplines	Semester Project
6	T	17-Feb	Industrial Engineering Overview	
	R	19-Feb	Industrial Engineering Activity	Industrial Engineering Homework
7	T	24-Feb	Electrical Engineering Overview	
	R	26-Feb	Electrical Engineering Activity	Electrical Engineering Homework
8	T	3-Mar	Computer Engineering Overview	
	R	5-Mar	Computer Engineering Activity	Computer Engineering Homework
9	T	10-Mar	Cybersecurity Engineering Overview	Engineering Reflections Report
	R	12-Mar	Cybersecurity Engineering Activity	Cybersecurity Engineering Homework
10	T	17-Mar	**Spring Break – NO CLASSES**	
	R	19-Mar	**Spring Break – NO CLASSES**	
11	T	24-Mar	Engineering Ethics Overview	Court Case & Licensure
	R	26-Mar	Engineering Ethics Case Studies	
12	T	31-Mar	Professional Licensure and Standards	
	R	2-Apr	Professional Communication	
13	T	7-Apr	Microsoft Word & PowerPoint	
	R	9-Apr	Microsoft Excel & Outlook	
14	T	14-Apr	Introduction to LaTeX	
	R	16-Apr	LaTeX Application	
15	T	21-Apr	Project Presentations	
	R	23-Apr	Project Presentations	
16	T	28-Apr	Project Presentations	
	R	30-Apr	**READING DAY – NO CLASSES**	

Important Dates: SP-2026-Calendar-9.23.2025.pdf