ENC 3246: Professional Communication for Engineers
Fall 2024

Modality: Online, asynchronous

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Section: AB06 (24742)	**Instructor:** Patrick May
Section: AB07 (24743)	**Instructor:** Patrick May
Section: AB08 (24744)	**Instructor:** Keri Matwick
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Office: Turlington 2215
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Course Description

- 3 credits
- Prerequisite: ENC 1101 or ENC 1102
- General education: Composition, satisfies 6,000 words of the Writing Requirement (WR)

Engineers write at all stages in their careers, and writing can account for well more than 50% of engineer's workday by mid-career (Leydens J., *IEEE Transactions on Professional Communication* vol. 51, no. 3, pp. 242-263, 2008). This course teaches professional communication for engineers. Professional communication is the practice of conveying technical information to clients and stakeholders who vary in levels of engineering knowledge. In this class students learn how to research, organize, and present technical information in professionally written documents, work in collaboration with other professionals, and use various technologies to support their communication efforts.

This course is designed to help students master a variety of communication strategies and genres of writing relevant to engineering. These include the following: everyday acts of communication, such as email, memos, and technical descriptions; technical documents including failure analysis reports, research reports, and engineering grant proposals; and professionalization documents, including a cover letter, CV, and recorded elevator pitch to an open internship or entry-level position.

Students analyze writing situations in the professional engineering workplace and develop strategies for addressing audiences, organizing information, using IEEE formatting style, and presenting the work. The objective of this class is to learn to respond in writing to complex rhetorical situations, preparing students for the professional communities they will join.

OUTCOMES

In ENC 3246, students will learn to

- plan, draft, revise, and edit documents for use in professional settings
- adapt writing to different audiences, purposes, and contexts
- synthesize and report on the professional and technical literature in the field
- write in a clear, coherent, and direct style appropriate for engineering communication
- understand and employ common documents in engineering writing, including proposals, failure analyses technical descriptions, research reports, and professional correspondence
- avoid plagiarism
- search, evaluate, and cite primary and secondary sources
- format documents in IEEE, the formatting style used in engineering communication.

REQUIRED TEXT

- M. Alley, *The Craft of Scientific Writing*, 4th ed. University Park, PA, Penn State University: 2018.

REQUIRED TECHNOLOGY

This course requires you to have access to a webcam and microphone, or a smart device which can record video with audio. You will use your webcam and microphone to record your Elevator Pitch.

MAJOR ASSIGNMENTS AND GROUP PROJECTS

The assignments below include two group projects. For the Research Report, all aspects of planning and data collection will be collaborative, but the Research Report will be completed independently. For the Proposal project, all of the work, including the various written pieces, will be done collaboratively.

Job Application Packet (100 points, 400 words)
In this multi-part assignment, students will first find a currently posted internship or job they can reasonably apply for. Then, students will write a cover letter, resume, and an Elevator Pitch. The Elevator Pitch activity provides an opportunity to practice delivering this mini-speech for future use with employers or UF's career fair.

Failure Analysis Paper (100 points, 1400 words)
Students will write a detailed description of an engineering failure (similar to a case study) in their field which will include the cause and context of the failure, an analysis of the failure, and recommendations for practice based on the failure. The paper will include at least three visual aids and cite at least six scholarly sources.

Group Project 1: Research Report Project (part of the Proposal Project) (145 points, 1200 words*)*
Derived from the scientific method, the research report is the most common type of report written in academia. It is the form taken by lab reports and other documents that are based on original data collected by the researcher or research team. Working in a small group, students will establish a research question in order to

collect data needed for their Proposal project. Students will devise a method of gathering original data, then collect and interpret them for their relevance to the Proposal project. Individually, students will write a research report that presents and analyzes the data collected as a group.

Group Project 2: Proposal Project (215 points, 3000 words)
The capstone project will be a proposal for obtaining funding to design a solution to an engineering-related problem that responds to an actual CFP – NSF, UF, and other university-sponsored CFPs are used. The proposal will persuade a target funding agency or stakeholders that a significant problem exists and offer a feasible solution. This project contains all the boilerplate parts to a funding proposal including a Letter of Transmittal, Executive Summary, Problem Statement, Background Research, Technical Plan, Budget and Schedule, and an Evaluation Plan.

> **Prospectus** (40 points, words count toward Proposal total)
> This is a brief report to the project supervisor emphasizing the problem statement driving the proposal, a possible feasible solution, and a tentative schedule for completion.
>
> **Progress Report** (40 points, words count toward Proposal total)
> Students will write a progress report on proposal work. This will track activities, problems, and progress for both the individual's tasks, and the group's overall task. The focus will be on schedules, setbacks, problems solved, and the dates and stages of the progress.
>
> ***Technical Plan*** (40 points, words count toward Proposal total)
> The Technical Plan is the core of the Proposal. It is the section wherein your team presents your solution in a series of steps. The Technical Plan describes each stage or aspect of implementation with proper context. Considerations for the Technical Plan may include - but are not limited to - categories such as: materials, design, location, conditions (environmental, social, physical), anticipated impediments or challenges, and maintenance.

SCAFFOLDING ASSIGNMENTS AND IN-CLASS ACTIVITIES

Memos, Discussion board posts, digital content (320 points total, words count toward Major Writing Assignments)
These lower-stakes assignments enable students to practice drafting and build writing and collaborative skills. Students receive feedback on their drafting in order to improve their writing and produce content for the Major Writing Assignments.

General Education and Learning Outcomes

Composition Credit: Students must pass this course with a "C" or better to satisfy the CLAS requirement for Composition (C). To earn general education Composition credit, students will

- Demonstrate forms of effective writing (focusing on analyses, arguments, and proposals);
- Learn different writing styles, approaches, and formats and successfully adapt writing to different audiences, purposes, and contexts; effectively revise and edit their own writing and the writing of others;
- Organize complex arguments in writing, using thesis statements, claims, and evidence;
- Employ logic in arguments and analyze their own writing and the writing of others for errors in logic;
- Write clearly and concisely consistent with the conventions of standard written English;
- Use thesis sentences, claims, evidence, and logic in arguments.

University Writing Requirement: The University Writing Requirement (WR) ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning. Course grades now have two components. To receive University Writing Requirement (WR) credit (E6), a student must earn a course grade of C or higher **and** assignments must meet minimum word requirements totaling at least 6000 words. Thus, to earn WR-E6 credit, **students must complete all the major writing assignments**.

SUBMITTING ASSIGNMENTS

All major writing assignments are due by 11:59 p.m. EST on their calendar due date. It is your responsibility to make sure you submit your work by this deadline. You may find it helpful to use a Time Zone Converter to Eastern Standard Time when coordinating times to meet deadlines.

REVISION OF ASSIGNMENTS

During the course of the semester, the instructor **MAY (pending overall class performance**) open up the option to rewrite **one** individual Major Writing Assignment of your choosing (your new grade will replace the previous one). Revisions must be exhaustive; that is, *all* changes recommended by the writing coach/instructor must be made or no new score will be given.

SCHEDULE OF ASSIGNMENTS

All of the information about when assignments, activities, discussion, quizzes, and peer reviews are due is available through Canvas.

Grading

Grading for this course will be rigorous. Do not rely on the writing coach for copy-editing, even on drafts. To receive a passing grade, each paper must reach the minimum assigned word count.

Grading Scale

A	4.0	94-100	940-1000		C	2.0	73-76	730-769
A-	3.67	90-93	900-939		C-	1.67	70-72	700-729
B+	3.33	87-89	870-899		D+	1.33	67-69	670-699
B	3.0	83-86	830-869		D	1.0	63-66	630-669
B-	2.67	80-82	800-829		D-	0.67	60-62	600-629
C+	2.33	77-79	770-799		E	0.00	0-59	0-599

NOTE: It is UWP policy NOT to round grades in any direction. An 89.9 is a B+. A 92.8 is an A-, etc.

Course Policies and Procedures

Participation: Activities, Discussions, Quizzes, Peer Review

Similar to lab classes, Professional Communication for Engineers is skills-based – the more we write, the better writers we become. Because we develop writing skills by practicing with real audiences, planning, practice through activities and discussion, and peer review are vital to the class. Consequently, **these class elements comprise nearly half of the points for our course**.

Since so much of professional writing is collaborative, **daily and continuous-week participation is a crucial part of the class**. Students are expected to work with their peers in a professional manner designed to support the success of the groups. Discussions and Peer Reviews will be evaluated on the **quality of their content**, not simply quantity. More words does not mean a better grade; instead, the value of the words is what is most important.

Missed activities, discussions, and peer reviews will be awarded ZERO points. Missed activities, discussions, and peer reviews cannot be made up. Please read the weekly suggested schedule for deadlines regarding activities, discussions, and peer reviews.

Assignment Submission Policy

All assignments must be submitted by 11:59 p.m. on the calendar date they are due.

Academic Honesty

As a University of Florida student, your performance is governed by the UF Student Honor Code, (https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx). The Honor Code requires Florida students to neither give nor receive unauthorized aid in completing all assignments. Violations include cheating, plagiarism, bribery, and misrepresentation, all defined in detail at the above site.

Plagiarism

Plagiarism is a serious violation of the Student Honor Code. The Honor Code prohibits and defines plagiarism as, taken directly from https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/:

> **"E. Plagiarism.** A Student must not represent as the Student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:
>
> - **1. Stealing, misquoting, insufficiently paraphrasing, or patch-writing.**
>
> - **2. Self-plagiarism, which is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.**
>
> - **3. Submitting materials from any source without proper attribution.**
>
> - **4. Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author.**
>
> **F. Submission of Academic Work Purchased or Obtained from an Outside Source**. A Student must not submit as their own work any academic work in any form that the Student purchased or otherwise obtained from an outside source, including but not limited to: academic materials in any form prepared by a commercial or individual vendor of academic materials; a collection of research papers, tests, or academic materials maintained by a Student Organization or other entity or person, or any other sources of academic work."

University of Florida students are responsible for reading, understanding, and abiding by the entire Student Honor Code. The University Writing Program takes plagiarism very seriously, and treats instances of plagiarism as dishonesty and as a failure to comply with the scholarly requirements of this course. You commit plagiarism when you present the ideas or words of someone else as your own.

Important tip: There should never be a time when you copy and paste something from the Internet and don't provide the exact location and citation information for the source.

If a student plagiarizes all or any part of any assignment, he or she will be awarded a failing grade on the assignment. Additionally, writing coaches or the lead instructor may impose a course grade penalty and report any incident of academic dishonesty to the Office of the Dean of Students. **Each student's work may be tested for its originality against a wide variety of databases by anti-plagiarism sites to which the University subscribes, and negative reports from such sites may constitute proof of plagiarism.** Other forms of academic dishonesty will also result in a failing grade on the assignment as a minimum penalty. Examples include cheating on a quiz or citing phony sources or quotations.

General Education Learning Outcomes: (C) and (WR)

Composition Credit: Students must pass this course with a "C" or better to satisfy the CLAS requirement for Composition (C). To earn general education Composition credit, students will

- Demonstrate forms of effective writing (focusing on analyses, arguments, and proposals);
- Learn different writing styles, approaches, and formats and successfully adapt writing to different audiences, purposes, and contexts; effectively revise and edit their own writing and the writing of others;
- Organize complex arguments in writing, using supported claims and proper evidence;
- Employ logic in arguments and analyze their own writing and the writing of others for errors in logic;
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The writing coach will evaluate and provide feedback on the student's written assignments with respect to content, organization and coherence, argument and support, style, clarity, grammar, punctuation, and mechanics. Conferring credit for the University Writing Requirement, this course requires that papers conform to the following assessment rubric. More specific rubrics and guidelines applicable to individual assignments may be delivered during the course of the semester.

Due Dates, Make-up Policy, and In-Class Work

Papers and drafts are due online at the assigned day and time. Late papers will not be accepted. Failure of technology is not an excuse. If illness or injury prevents a student from turning in a paper on time, the student should consult with the writing coach to turn in the work as soon as is feasible given the situation.

Readings and Lectures

In lieu of class meetings, readings and video lectures make up the instructional portion of the class.

General Assessment Rubric

The rubric below is intended as a general guide to how work is graded. "Satisfactory" does NOT mean an "A" grade – "Satisfactory" represents a range of acceptable work from "C" to "A".

	SATISFACTORY (Y)	UNSATISFACTORY (N)
CONTENT	Papers exhibit evidence of ideas that respond to the topic with complexity, critically evaluating and synthesizing sources, and provide an adequate discussion with basic understanding of sources.	Papers either include a central idea(s) that is unclear or off- topic or provide only minimal or inadequate discussion of ideas. Papers may also lack sufficient or appropriate sources.
ORGANIZATION AND COHERENCE	Documents and paragraphs exhibit identifiable structure for topics, including a clear thesis statement and topic sentences.	Documents and paragraphs lack clearly identifiable organization, may lack any coherent sense of logic in associating and organizing ideas, and may also lack transitions and coherence to guide the reader.
ARGUMENT AND SUPPORT	Documents use persuasive and confident presentation of ideas, strongly supported with evidence. At the weak end of the satisfactory range, documents may provide only generalized discussion of ideas or may provide adequate discussion but rely on weak support for arguments.	Documents make only weak generalizations, providing little or no support, as in summaries or narratives that fail to provide critical analysis.
STYLE	Documents use a writing style with word choice appropriate to the context, genre, and discipline. Sentences should display complexity and logical structure.	Documents rely on word usage that is inappropriate for the context, genre, or discipline. Sentences may be overly long or short with awkward construction. Documents may also use words incorrectly.
MECHANICS	Papers will feature correct or error-free presentation of ideas. At the weak end of the satisfactory range, papers may contain a few spelling, punctuation, or grammatical errors that remain unobtrusive and do not obscure the paper's argument or points.	Papers contain so many mechanical or grammatical errors that they impede the reader's understanding or severely undermine the writer's credibility.

Conferences and Writing Studio

Students are encouraged to use the writing coach's office hours (electronic and face-to-face) if there are questions about progress in the course, work underway, or any other course-related concerns. If there is a conflict with the posted office hours, please contact the writing coach to schedule a better time. Having conferences on assignments is often the best way to improve the quality of final drafts. The *Writing Studio* also offers one-on-one assistance on writing projects and is available to students of all levels.

Evaluations

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://gatorevals.aa.ufl.edu and the link to evaluations is located within our Canvas shell. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.

Students with Disabilities

The University of Florida complies with the Americans with Disabilities Act. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the writing coach when requesting accommodation.

Course schedule:
The course schedule is subject to change. The syllabus on Canvas supersedes the print document. Readings should be completed by the day on which they are listed.

Week 1 – Professional Profile and Engineering Audiences

Session 1-2

- Learning objective: Course orientation; Professional profile
- Course Introduction -- Syllabus: Goals, policies, assignments, textbooks and readings, and course organization
- Introduce: Professional Bio
- Read:
  - *CSW*: Sec. 9, An effective email is a balance between *I* and *you*
  - How Engineers can Improve Technical Writing
  - Netiquette: Key factors in writing emails

Week 2 – Career Advancement

Session 1

- Learning objective:
  - Professional profile and audiences for engineering/documents
  - Features of professional correspondence
- Introduce:
  - Major Assignment: Job Application Materials
- Lecture: "Looking for an Internship"
- Activity
  - Reading and Writing for the Job Ad
  - Avoiding plagiarism / plagiarism quiz

- Read - *CSW*: Sec. 1, Analyzing the Audience, Purpose, and Occasion (covers knowing whom you're writing for, to tailor your document)

Additional Readings:

- Listed in module

Session 2

- Activity:
    - o   Reader-Centered Communication in Job Applications
    - o   Student Samples - Resumes and Cover Letters

Week 3 – Career Advancement
Session 1

- Learning objective:
    - o   Professional profile and audiences for engineering/documents
    - o   Features of professional correspondence
- Introduce: The Elevator Pitch
- Lectures:
    - o   Elevator Pitch
    - o   Cover Letter
    - o   Resumes
    - o   Writing the Application

Session 2

- Activity: Peer Review - Job App Portfolio

Important due dates: Job App Portfolio should be complete by end of Week 3

Week 4-5 – Analyzing document design; Scholarly and Trade literature
Session 1

- Learning objective: Analyzing document design
- Assignment: Analyzing Publications in Your Field – Document Design
- Activity:
    - o   Document Design: Academic Journal
    - o   Document Design: Trade Journal
    - o   Graphics Analysis: Academic vs Trade
- Read: *CSW:* Sec. 7, Organizing the Content for the Audience (covers organization for technical documents)

Session 2

- Learning objective: Identifying credible sources in your field of engineering
- Assignment: Scholarly Versus Trade Sources – Comparing Two Types of Sources
- Activity:
  - Evaluating scholarly journals and trade publications in your field
  - Evaluating how sources discuss an engineering solution in your field – a prelude to citing sources in your own documents
  - IEEE Citation style: Document formatting style, in-text citations and wording, composing a References page
- Read: Appendix D, "Format: Dressing Documents for Success" (covers general formatting - not IEEE style)

  Important due dates: Document Design Analysis due at end of Week 4 or beginning of Week 5

Week 5 – Citing and synthesizing credible sources in engineering

Session 1

- Learning objective: Citing and synthesizing credible sources in engineering
- Quiz:
  - Scholarly Documents Quiz
- Activity:
  - Synthesizing Sources in Your Field
- Read: *CSW:* Sec. 2, Balancing Precision with Clarity (covers wording and clarity in technical writing)

Session 2

- Activity: Summarizing the latest research on an engineering solution in your field – citing and synthesizing scholarly and trade publications

Week 6 – Failure Analysis

Session 1

- Learning objective – Understanding failure analysis: cases, modes/types of failure, methods of testing, industry standards
- Assignment: The Failure Analysis Paper
- Lectures:
  - Writing Part 1 of the Failure Analysis
- Read: CSW:
  - Sec. 6, Beginning with the Familiar (covers structuring a document and defining technical terms)
  - Failure Analysis Subject Guide

Session 2

- FA Paper Part 1 walkthrough
- Assignment: Analyzing an everyday failure
- Activity: Analyzing an everyday failure
- Read: Failure Analysis and Materials Testing – A Subject Guide

Week 7 -Failure Analysis

Session 1

- Lecture:
    - Writing Part 2 of the Failure Analysis Paper
    - How to locate, cite, and word standards
- Assignment:
    - Methods and Types of Testing
    - Making Recommendations in the FA Paper
- Activity:
    - Sample FA Papers

Session 2

- Introduce: Planning Email 4: FA Case Study and Analysis (for Part 2)
- Assignment: Planning the FA paper
- Activity:
    - Locating sources for the FA Paper: using journals that publish Failure Analyses / Case Reports of Failure
    - In-class drafting and peer review of FA Paper

    Important due dates: Failure Analysis Paper due at end of Week 7 or beginning Week 8

Week 8 – The Research Report

Session 1

- Learning objective: Learn the IMRD format for engineering research
- Introduce: The Research Report (gathering data for a solution to an engineering problem)
- Lecture: Preparing to write the Research Report
- Activity:
    - Parts of a Research Report / Sample Research Report in Engineering
    - Form teams and choose topic
    - Brainstorm with Group on Research Project
- Read:
    - *CSW*: Sec. 7, Organizing the Content for the Audience (covers organization for technical documents)
    - Sec. 5, Connecting Your Ideas (covers sentence coherency, graphs, illustrating)
    - Driscoll: Introduction to Primary Research: Observations, Surveys, and Interviews

Session 2

- Assignment: Pitching the Proposal Topic and Research Report
- Activity:
  - Research questions, hypotheses, and problem statements – when and how to write each
  - Establishing Problem Statements

Week 9 – Intro and Methods for the Research Report

Session 1

- Learning objective: writing parts of the Introduction; Methods of data collection – surveys, direct observation, datasets
- Assignment: Investigation Type and Methods Statement
- Lecture: Methods and Results Sections
- Activity:
  - Writing and distributing surveys / Using Qualtrics
  - Research Report - Intro parts:
    - Topic
    - Problem / Gap statement
    - Literature review
    - RQ / hypothesis

Session 2

- Assignment: Gathering Sources
- Activity:
  - Writing Introductions and Methods sections
  - Sample student papers
- Read:
  - How to write a research journal article
  - Writing research reports in engineering

Week 10 – Results and Discussion for the Research Report

Session 1

- Learning objective: writing the Results and Discussion sections
- Lecture: Introductions and Conclusions
- Activity:
  - Results – creating and including visuals
  - Discussions – the return of secondary sources
  - Sample student papers

Session 2

- Activity: Peer Review – Research Report drafts

Week 11 – Team conferences on Research Report OR More prep work

Session 1

- Activity: Conferences / Outcomes and Analysis

- Peer review

Session 2

- Activity: Conferences / Outcomes and Analysis
- Peer review

Important due dates: Research Report due at end of Week 11 or beginning of Week 12

Week 12 – The Proposal Project

Session 1

- Learning objective: Understanding the Proposal / RFPs; Prospectus
- Assignment: The Proposal Project
- Lecture:
    - Understanding Proposals and RFPs
- Activity:
    - Topics that meet CFPs – feasibility of locality, scope, budget
    - Sample student Proposals – the sections of this document
    - Getting to know your team / pitching Proposal ideas
- Read: *CSW*: Sec. 9.3, A proposal is an argument for how to solve a problem (covers Proposal writing)

Session 2

- Assignment: The Proposal Prospectus
- Activity:
    - Sample Proposal Prospectuses
    - Team Work on Prospectuses
    - Audience analysis exercises for Proposals

Week 13 – The Proposal Project

Session 1

- Assignment: The Progress Report
- Lecture: Writing Progress Reports
- Activity:
    - Sample Progress Reports
- Read: I wrote the book on user-friendly design – what I see today horrifies me

Session 2

- Peer review: Prospectuses

Week 14 – The Proposal Project

Session 1

- Assignment: Technical Plan
- Lecture: Technical Plan, Budget and Schedule, Evaluation Plan

Session 2

- Activity: Drafting the Technical Plan

Week 15 –Team conferences on Proposal Project

Session 1

- Assignment: Evaluation Plan
- Lecture: Writing Letter of Transmittal, Executive Summary, Assembling the whole Proposal

Session 2

- Activity: Proposal presentation guidelines

Week 16 – Team Proposal Presentations

- Presentations – OPTIONAL

Important due dates: Proposal Project due