



### Course Activities:

Course activities will consist of reading the course textbook, power-point presentations, viewing engineering related videos, discussion forums, online quizzes and tests, group assignments and an engineering design project.

<b>Grading Policy:</b>	Assignments	10%
	Quiz #1	10%
	Quiz #2	20%
	Quiz #3	20%
	Final	20%
	Design Project	20% - Paper 15%, Pres - 5%

<b>Grading Scale:</b>	<b>B<sup>+</sup></b> = 86 - 89	<b>C<sup>+</sup></b> = 76 - 79	<b>D<sup>+</sup></b> = 66 - 69	
	<b>A</b> = 93 - 100	<b>B</b> = 83 - 85	<b>C</b> = 73 - 75	<b>D</b> = 63 - 65
	<b>A<sup>-</sup></b> = 90 - 92	<b>B<sup>-</sup></b> = 80 - 82	<b>C<sup>-</sup></b> = 70 - 72	<b>F</b> = 62 and below

### Textbook Outline:

- I. Introduction
  - a. Engineering is all around
  - b. Disciplines in engineering
  
- II. Engineering Problem Solving
  - a. Engineering problems and fundamental dimensions
  - b. Physical laws and observations in engineering
  - c. Basic steps in engineering problem solving
  - d. Communication and presentation of engineering work
  
- III. Engineering Design Process
  - a. Engineering Economics
  - b. Engineering Ethics
  
- IV. Engineering Drawing and Symbols
  - a. Importance of Engineering Drawing
  - b. Civil, Electrical and Electronic Drawings
  - c. Rapid Prototyping Modeling
  
- V. Fundamentals Dimensions
  - a. Length and length related engineering parameters
  - b. Time and time related engineering parameters
  - c. Mass and mass-related engineering parameters
  - d. Force and force-related parameters
  - e. Electricity

## Weekly Topics

WEEK	DATE	TOPIC	LEARNING OBJECTIVE
1	Jan. 18	Chapter 1: Introduction to Engineering Profession	1
2	Jan. 25	Chapter 2: Preparing for an Engineering Career	1, 3
3	Feb. 1	Chapter 3: Engineering Design Process Engineering Design Project Selection	3, 6
4	Feb. 8	Chapter 6: Engineering Fundamentals	3,6
		<b>Quiz #1</b>	3
5	Feb. 15	Chapter 4: Engineering Communication Chapter 5 – Engineering Ethics Engineering Design Project - Objective	4 3 6
6	Feb. 22	Chapter 12 – Electric Current	3
7	Mar. 1	<b>Quiz #2</b>	3
8	Mar. 15	Chapter 9: Mass and Mass Related Parameters	3
		<b>Technical Topic: Sensors Module#1</b>	1,3,5,6
9	Mar. 22	Chapter 11: Temperature	3
		<b>Technical Topic: Sensors Module #2</b>	1,3,5,6
10	Mar. 29	Chapter 10: Force and Force Related Parameters	3
		<b>Technical Topic: Sensors Module #3</b>	1,3,5,6
11	Apr. 5	<b>Technical Topic: Sensors Module #4</b>	1,3,5,6
		<b>Technical Topic: Sensors Module #5</b>	1,3,5,6
12	Apr. 12	<b>Quiz #3</b>	1,3,5,6
13	Apr. 19	Engineering Design Project Review	1,3,5,6
14	Apr. 26	Engineering Design Project - Presentation	4
Final	May 3	<b>Final Exam</b>	3

*\*Schedule subject to change (ie. Online learning, in-person learning, etc.)*

**Assignments:** Assignments are given to reinforce topics in the readings and discussions. Assignments are due the **following Tuesday** after they are assigned. Late homework will not be accepted.

- **Chapter Problems** – Chapter problems will be graded for accuracy. Incorrect or incomplete answers will result in point deductions.
- **Reflections** – Reflections are designed to engage students in their pursuit of engineering and the impact engineering solutions have in the world in which we live. Responses should answer the question in detail clearly expressing the student’s perspective. Responses should be typed in Times New Roman, 12 font, double spaced and have a minimum word count of 150 words.

**Projects:** Each student will complete a research paper and oral presentation. If the class size is 14 students or more the project will be done in groups of two. Each student **must** contribute to the project. An assessment of participation will be given by each member on the team.

**Quizzes:** Quizzes will be administered throughout the semester to test and promote retention of subject matter. Each quiz will cover information assigned to be read in the text and handouts. Missed quizzes can only be made up due to excused absences.

### **Class Policies:**

- **General Rules:**
  - Always respect others.
  - Ask questions, knowing is half the battle.
  - The course outline is a general guide; it is subject to modification.
- **Attendance: Class attendance is mandatory.** Be present, on time, and on camera should we have to transition to online for any reason. Absences will affect overall grade. Students are required to read and be prepared to discuss the assigned textbook chapters before the class session.

Students who miss an examination, work assignment, or other project due to the observance of a religious holy day will be given the opportunity to complete the work missed within 5 days following the due date of the assignment, test, or project missed. To be eligible, student should submit in writing the classes scheduled on dates of the religious holy day within the first three weeks of class. Failure to follow this procedure will result in an unexcused absence.

- **Cell phones:** Devices should be on silent mode during class.
- **Weather Calamity** – if classes are interrupted due to weather conditions scheduled assignments are due as assigned or on the first day classes begin
- **Withdrawal Policy:** Students may withdraw from a course with a grade of “W” by the second Friday in November (Fall Semester) and the last Friday in March (Spring Semester). After the November and March deadlines, a student who withdraws from a course will receive a grade of “F” in the course. See Spelman Bulletin for process to withdraw from a course.
- **Americans with Disabilities:** Spelman College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or think you may have a disability) and, as a result, need a reasonable accommodation to participate in class, complete course requirements, or benefit from the College's programs or services, you should contact [Student Access Center \(SAC\)](#) as soon as possible. The Student Access Center works with students

confidentially and does not disclose any disability-related information without their permission. Contact the Student Access Center at 404-270-5289 for additional information. The Student Access Center is located in MacVicar Hall, Room 106.

- **Academic Integrity:** All students are expected to pursue their scholastic careers with honesty and integrity. At the heart of Spelman College's mission is academic excellence, along with the development of intellectual, ethical and leadership qualities. These goals can only flourish in an institutional environment where every member of the College affirms honesty, trust, and mutual respect. All members of the academic community of Spelman College are expected to understand and follow the basic standards of honesty and integrity, upholding a commitment to high ethical standards. Students are expected to read and abide by the Spelman College Code of Conduct (see the current Spelman College Student Handbook) and are expected to behave as mature and responsible members of the Spelman College academic community. Students are expected to follow ethical standards in their personal conduct and in their behavior towards other members of the community. They are expected to observe basic honesty in their work, words, ideas, and actions. Failure to do so is a violation of the Spelman College Academic Integrity Policy. Violators will be subject to the sanctions outlined in the Spelman College Bulletin.

### **COVID-19 Policy:**

Spelman College recognizes that this is a difficult time which may be filled with uncertainty as we move forward with the 2021-2022 academic year. Your safety, health, and well-being, as well as that of our faculty and staff are our primary concern and we want to be able to support you in any way that we can. We ask that you adjust your behavior to keep yourself and others safe. The College has expectations that students, faculty and staff will act responsibly to mitigate risk to others. **Face Mask/Covering in the Classroom is Required.**

In accordance with Spelman College and the Atlanta University Center Consortium (AUCC) Covid protocols, all vaccinated and unvaccinated individuals are required to wear face masks/covering in classrooms, laboratories, and other public space where in-person instruction occurs. Facemasks/coverings must cover the nose and mouth and fit snugly against the face. **Face shields do NOT replace mask wearing.**

Failure to comply with Spelman College protocols for face masks/coverings will constitute a violation of the Spelman College Code of Conduct. If you are not wearing a face covering, you will be asked to do so. Refusal to wear a face mask/covering will result in your being asked to leave the classroom. Please note that while exceptions for medical reasons will be accommodated to the best of the College's ability, the College cannot provide an accommodation that places others at risk; therefore, an accommodation to participate in class or related activities in person without a face covering will not be permitted.

## **Safe Behavior in the Classroom**

- Physical distancing of at least six feet, will be observed whenever possible.
- Any student experiencing symptoms of COVID-19, with a suspected or positive diagnosis of COVID-19, or with known exposure to COVID-19 should not attend class or come to campus, if not a residential student. Students who are experiencing symptoms or believe they may have been exposed to COVID-19 should call Student Health Services or their health care provider for guidance. Any student with a positive diagnosis of COVID-19 or with known exposure to COVID-19 must report this fact to Student Health Services at 404-270-5249.
- COVID-related class absences fall under the College's excused absence policy. Per the College's COVID protocols, a student who becomes ill or is required to quarantine during the semester should notify the Office of Undergraduate Studies for an excused absence.

### **Web Protocol:**

If necessary, this course can be delivered weekly online using various learning activities to meet the goals and objectives of this course. Course information can be found on Moodle, the SpeleLearn course management system. To access Moodle, log-in to your SpeleLearn (Moodle) account from the [MySpelman Portal](http://my.spelman.edu) (my.spelman.edu).

### **Technology Requirements:**

- A wired Internet connection (DSL, LAN, or cable connection is desirable with Bandwidth of 512Kbps for connecting to SpeleLearn (Moodle) course management system is recommended).
- [System Requirements](#) (Click to view)
- WebCam with microphone
- USB port

### **Technology Service Desk:**

Contact the Spelman Technology Services (STS) Service Desk for technology related questions/issues by phone at (404) 270-5400 or via email at [stsservice@spelman.edu](mailto:stsservice@spelman.edu) IT Professional staff the Service Desk Monday through Friday from 8 AM through 11 PM; Saturday, 10:00 AM – 1:00 PM, and Sunday, 1:00 PM -4:00 PM.

Service Desk staff provide phone support for applications, including the MySpelman portal, SpeleLearn (Moodle) Learning Management System, and Microsoft Office 365.

# EGR 101 - Introduction to Engineering

## Project Guidelines

**Objective:** Projects are conducted in this course to allow students to exercise their creativity, problem solving skills, and enforce the importance and necessity of the problem solving / engineering design process.

Students are expected to complete project by deadline given. **No late projects will be accepted except if an excuse is obtained from the Office of Undergraduate Studies.**

Projects are 20% of the student's overall grade.

### **Paper (15%)**

Each student/group is responsible for submitting a paper detailing the engineering problem, related research, solution, and outcome. The length of paper will depend on the nature of the project. All papers must include research information and design analysis. Additional requirements will be provided when the project is assigned.

### **Presentation (5%)**

Each group is responsible for developing a presentation using PowerPoint detailing the project activity, process, and outcome. The presentation should be at least 5 minutes in length, but no more than 10 minutes. In addition to content, the student will be graded on oral communication skills including voice projection, and body language. Practice is strongly encouraged.

### **Potential Projects Topics**

- **Engineering and Environment** - Teams will design projects that are engineering solutions to environmental problems. The problems can include water and air pollution, energy use, recycling, solid wastes, resource depletion, ecological impacts and land use, sustainability, and green engineering.
- **Assistive Technology** – Teams will design technology to assist people with disabilities defining the scope and design of the project. The project is to better the life of a person in the community who has a disability.
- **Technological Systems for Developing Worlds** – Teams will create and design (and construct time permitting) technology to introduce small scale community developments to solve water, sanitation, energy, and health problems in developing countries.