

Department of Electrical and Computer Engineering

**EGN 1002 – Engineering Orientation
Fall 2022**

Instructor : Dr. Nonnarit O-larnnithipong
Office Hours : by appointment
Monday & Wednesday 11:00 am - 12:30 pm

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Class Time : Monday and Wednesday 4:00 pm - 05:15 pm
Website : Course content is available through FIU Canvas

Catalog Description:

Introduction to aspects of the engineering profession. Computer tools and basic engineering science. Team-based engineering projects.
(2 Credits)

Reference Textbook: Open source materials are used as instruction materials

Course Objectives:

Through successful completion of the course, the student will:

- Describe the role of each engineering discipline and professional organizations for engineers.
- Apply professional ethics as a guidance for pursuing their degrees and careers.
- Apply basic engineering science and logical thinking to solve engineering problems.
- Apply probability and statistics knowledge to solve engineering problems.
- Effectively use basic computer tools in Engineering.
- Plan and complete a team-based engineering project.
- Work effectively as a team.
- Write a technical report.

Topic Covered:

1. Disciplines of Engineering and Professional Ethics
2. Key Elements in Engineering Analysis
3. Electrical Circuits
4. Scratch: Visual Programming Language using a simple block-like interface
5. MakeCode: Visual programming language used to program Micro:bit projects
6. Robot Project
7. Basic Computer Tools for Engineering: MATLAB

ABET Relationship of course to program outcomes:

- 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- 3. an ability to communicate effectively with a range of audiences.
- 4. 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.
- 5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading Scale:		
A	95-100	"Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook."
A-	90-94	
B+	87-89	
B	83-86	
B-	80-82	
C+	77-79	
C	70-76	
D	60-69	
F	< 60	

Department Regulations Concerning Incomplete Grades

To qualify for an Incomplete, a student:

1. Must contact (e.g., phone, email, etc.) the instructor or secretary before or during missed portion of class
2. Must be passing the course prior to that part of the course that is not completed
3. Must make up the incomplete work through the instructor of the course
4. Must see the Instructor. All missed work must be finished before last two weeks of the following term.

Policies:

1. **Academic Misconduct:** For work submitted, it is expected that each student will submit their own original work. Any evidence of duplication, cheating or plagiarism will result at least a failing grade (F) for the course. Please **DO NOT SHARE** your assignments/classwork with other students. If the evidence of duplication is found, 0 point will be given, no exception.
2. **Deadlines:** Work is due on the date and time specified. Late submissions will not be accepted. Participation and submission deadlines are absolute. (Only emergency medical situations or extenuating circumstances are excused with proper documentation.)
3. **DO NOT** submit work by email.
4. Instructor reserves right to change course materials or dates as necessary.

Grading Scale:

Topic	Percentage
Class Discussions	5%
Quizzes	15%
Assignments	30%
Robot Project	35%
Final Exam	15%

Class Schedule:

	Date	Contents	Assignment Due Dates
1	08/22-8/28	<ul style="list-style-type: none"> • Course Introduction • Disciplines of Engineering • Engineering Ethics and Case Study 	<ul style="list-style-type: none"> • Discussion#1 Engineering Innovation (8/28)
2	08/29-9/4	<ul style="list-style-type: none"> • Team Formation - Lost on the Moon • Key Elements in Engineering Analysis 	<ul style="list-style-type: none"> • Discussion#2 Lost on the Moon (8/29) • Quiz #1 Disciplines of Engineering, Engineering Challenges and Code of Ethics (9/2)
3	09/05-9/11	Labor Day (University's Holiday, NO CLASS)	<ul style="list-style-type: none"> • Discussion#3 Why does the metric system matter? (9/9) • Quiz #2 Key Elements in Engineering Analysis (9/11)
		<ul style="list-style-type: none"> • Key Elements in Engineering Analysis (Continued) • Electrical Circuits 	
4	09/12-9/18	<ul style="list-style-type: none"> • Electrical Circuits (continued) 	
5	09/19-9/25	<ul style="list-style-type: none"> • Scratch: Visual programming language using a simple block-like interface 	<ul style="list-style-type: none"> • Assignment#1 Electrical Circuits (9/23)
6	09/26-10/2	<ul style="list-style-type: none"> • Scratch: Visual programming language using a simple block-like interface 	
7	10/03-10/9	<ul style="list-style-type: none"> • MakeCode: Visual programming language used to program Micro:bit projects • Robot Project: Lecture and hands-on 	<ul style="list-style-type: none"> • Assignment#3 Scratch: Analog Clock (10/3)
8	10/10-10/16	<ul style="list-style-type: none"> • Robot Project: Lecture and hands-on 	

9	10/17-10/23	<ul style="list-style-type: none"> Robot Project: Lecture and hands-on 	<ul style="list-style-type: none"> Micro:bit and Maqueen - Line Tracking (10/21)
10	10/24-10/30	<ul style="list-style-type: none"> Robot Project: Lecture and hands-on 	
11	10/31-11/6	<ul style="list-style-type: none"> Robot Project: Lecture and hands-on 	
12	11/07-11/13	<ul style="list-style-type: none"> Robot Project: Lecture and hands-on 	
13	11/14-11/20	<ul style="list-style-type: none"> Robot Project: Lecture and hands-on Basic Computer Tools for Engineering: MATLAB 	<ul style="list-style-type: none"> Line Following and Obstacle Avoiding Robot Project (11/16)
14	11/21-11/27	<ul style="list-style-type: none"> Basic Computer Tools for Engineering: MATLAB 	<ul style="list-style-type: none"> Project Report (11/23)
15	11/28-12/4	<ul style="list-style-type: none"> Basic Computer Tools for Engineering: MATLAB Course Review 	<ul style="list-style-type: none"> Assignment#4 MATLAB plots (12/4)
Final Exam: Monday, December 5, 2022 02:15pm - 04:15pm EC 2440			