

EGN-1002 Engineering Orientation

Professor Wilmer Arellano
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Office: EC3834

Classroom: NA
Class Time:

Office Hours:

Important Information

Before starting this course, please review the following pages:

- [Accessibility and Accommodation](#)
- [Academic Misconduct Statement](#)

*The professor reserves the right to change or modify the syllabus at any time during the semester.

Course Description

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

Course Objectives

After completing this course, students are expected to have learned the following:

1. The specialization areas and professional organizations for engineers
2. How an engineer plans and completes a project
3. Basic computer tools used by engineers
4. How to write a technical report
5. How to prepare and give an effective oral presentation
6. How to work effectively within a team
7. Professional Ethics
8. Importance of Lifelong Learning
9. Be able to apply probability and statistics knowledge to solve [electrical/computer engineering problems (or problems related to the course)].

Topics Covered

1. Principles of teaming; creating a team contract; maintaining a team

2. Problem-solving as a team; brainstorming methodology
3. How to create a proposal for an engineering project
4. How to make an effective oral presentation
5. How to create an effective technical report
6. Carrying out a measurement laboratory project and reporting the results
7. Introduction to the discipline areas of engineering
8. Introduction to the organizations for engineering students
9. Effective use of computer tools in Engineering
10. Visits to some research laboratories and centers within the department
11. Engineering project with a formal report and oral presentation
12. Professional Ethics

Relationship of course to program objectives

In this course, the student will have to show:

1. an ability to apply knowledge of mathematics, science, and engineering,
2. an ability to function on multi-disciplinary teams
3. an understanding of professional and ethical responsibility
4. an ability to communicate effectively
5. an ability to communicate effectively (through teamwork),
6. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice,
7. a knowledge of contemporary issues.

Grading Scheme

| | | |
|--------------------------------------|-----|------|
| Lab Reports and Classwork. | | 20% |
| Robotic Project | 35% | |
| Fully Functional Robot | | 15% |
| Written Report | | 10% |
| Video Report | | 10% |
| Engineering Disciplines Report | | 15% |
| Engineering Disciplines Presentation | | 15% |
| Final Exam | | 15% |
| Total | | 100% |

Tentative Grading Scale

| | | | | | | | | | |
|----|--------|----|-------|----|-------|---|-------|---|------|
| A | 95-100 | B+ | 86-89 | C+ | 76-79 | | | F | 0-35 |
| A- | 90-94 | B | 83-85 | C | 70-75 | D | 36-69 | | |
| | | B- | 80-82 | | | | | | |

Tentative Dates:

- **Final Test: Date assigned by Panthersoft.**

University's Code of Academic Integrity

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.

More information can be found at http://academic.fiu.edu/academic_misconduct.html

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 the missed portion of the class.
2. Must be passing the course before 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 the last two weeks of the following term.

University policies on sexual harassment, and religious holidays, and information on services for students with disabilities

Please visit the following websites:

<http://academic.fiu.edu/>

<http://drc.fiu.edu>

Course Policies:

- **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 in at least a failing grade for the course.
- **Excused Absences:** Only emergency medical situations or extenuating circumstances are excused with proper documentation.
- **Deadlines:** Assignments are due at the beginning of the class period on the date specified. Assignments submitted late, 15 Minutes to end of class 10% deduction. After class to 1 day 25% deduction, 2 days 50% deduction. 3 or more days 100% deduction.
- To get assistance, schedule an appointment.
- Students are encouraged to ask questions and to discuss course topics with the instructor and with each other.
- **Any work submitted should display Panther ID number and be signed as the students' work, and that no unauthorized help was obtained.**
- **DO NOT** send assignments by email.
- The instructor reserves the right to change course materials or dates as necessary.

Exam policy

1. All exams are open notes.
2. Use of any electronic device with communication capabilities is prohibited.
3. The instructor is not compelled to give credit for something he cannot read or follow logically.
4. Cheating is considered as a severe offense. Students who are caught will receive the appropriate consequences.

Class Schedule

Twice a week.

| Week | Activity | Type |
|------|--|------------|
| 1 | Introduction. Assignment 1 (introduce yourself). | Lecture |
| 1 | Students Introductions/Team Formation. Writing your Resume. Lecture available online. | Individual |
| 2 | Lost on the Moon (Exercise on team brainstorming). | Team |
| 2 | Successful Projects. Lecture and Exercise. | Team |
| 3 | Circuits. | Lecture |
| 3 | Circuits. | Team |
| 4 | Field Experience on Solar Cells and Stirling engines. | Team |
| 4 | Scratch, visual programming language using a simple block-like interface. | Team |
| 5 | Scratch, visual programming language using a simple block-like interface. | Team |
| 5 | Scratch, visual programming language using a simple block-like interface. | Team |
| 6 | Robotic Project. Hardware and Mechanical Assembly. | Team |
| 6 | mblock, a visual programming language based on Scratch used to program Arduino projects. | Team |

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| 7 | mblock, a visual programming language based on Scratch used to program Arduino projects. | Team |
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| 8 | Robotic Project. Lecture and hands-on, several sessions. | Team |
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| 9 | Robotic Project. Lecture and hands-on, several sessions. | Team |
| 9 | Robotic Project. Lecture and hands-on, several sessions. | Team |
| 10 | Robotic Project. Lecture and hands-on, several sessions. | Team |
| 10 | Engineering Disciplines Project explained. | Lecture |
| 11 | Strategy, project planning. | Lecture |
| 11 | Writing Style. | Lecture |
| 12 | Engineering Economics \ Cost of losing one semester and estimating the cost of losing one semester, including lost salaries and interest. | Lecture |
| 12 | Ethics. | Team |
| 13 | Professional Societies. | Lecture |
| 13 | Body Language / Oral Presentation. | Lecture |
| 14 | Vehicles. Vehicles as an example of sustainability. | Lecture |
| 14 | Visits to Labs. | |
| 15 | Report on the Engineering Disciplines /Students Presentations usually (4 teams per day) Takes 1 week. | Presentations |
| 15 | Report on the Engineering Disciplines /Students Presentations usually (4 teams per day) Takes 1 week. | Presentations |
| 16 | Exam. | |