



## Philadelphia University

### Faculty of Engineering - Mechatronics Engineering Department

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**Title:** Engineering Skills (0640253)

**Prerequisite:** English II (130102)

**Credit Hours:** Three credit hours (16 weeks per semester, approximately 45 contact hours)

**Textbook:** Foundations of Engineering by Holtzapple and Reece. 2nd ed.

**References** Engineering Fundamentals: An Introduction to Engineering by S. Moaveni. 5th ed.  
Engineering Your Future: A Brief Introduction to Engineering by W. Oakes. 9th ed.

### Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Function effectively within a team	[5]
2.	Communicate effectively in written and oral skills	[3]
3.	Read research paper and write a technical report	[3]
4.	Understand professional and ethical responsibilities	[4]
5.	Understand project management basics and plan the management of simple projects	[5]

Course Academic Calendar	
Week	Subject
1	<b>Introduction</b> Course outline; Student Learning Outcomes; Introduction to Engineering: Definition, Engineering Disciplines, Successful Engineering Skills
2	<b>Problem Solving</b> Types of Problems, Problem Solving Skills, Problem Solving Procedure
3	Estimation, Creativity
4	<b>Introduction to Design</b> Design Method Steps, Problem Definition, Solution Search
5	Analysis, Implementation, Evaluation, Examples
6	<b>Communication I: Technical Reading</b> How to read a textbook.
7	<b>Communication II: Technical Writing</b> Engineering Documents; Main Sections in Technical Reports
<b>Mid Exam</b>	
8	Constructing Sentences; Punctuation; Constructing Paragraphs;
9	<b>Writing workshop</b> How to Write a Proposal; How to Write a Technical Report.
10	<b>Communication III: Presentation</b> Oral Presentation; Preparation; Structure; Visuals; Voice Quality; Body Language
11	<b>Student Presentations I</b> First Draft Student Presentations.
12	<b>Ethics</b> Code of Ethics for Engineers (Jordanian Engineers Association). Interaction rules; Moral theories; Guidelines; Engineering Responsibility
13	<b>Project Management Skills</b> CPM, Gantt Chart, Team Building, Leadership
14	<b>Student Presentations II</b>
15	<b>Review</b>
<b>FINAL EXAM</b>	

#### Assessment Guidance:

Evaluation of the student performance during the semester will be based on the following:

**Exams:** Two written exams will be given to the students. Each exam will cover material from the previous 4-5 weeks. Also, students will have a final exam at the end of the semester covering all the materials taught in the course.

**Quizzes:** Three 10-minute quizzes will be given to the students. The material will be based on one or two lectures.

**Project** Students will be required to work in a team to study an engineering system, write a technical report, and present the results in class.

#### Grading policy:

Mid Exam	30%
Project / Quizzes	30%
Final Exam	40%
Total: 100%	