



Philadelphia University
Faculty of Engineering, Department of Mechatronics Engineering
Course Syllabus, First Semester, 2019/2020

Course Title: Programming lab for Mechatronics (0640221), Second year.

Prerequisite: C++ programming language (0640752).

Credit Hours: 1-credit hour (16 weeks per semester, approximately 3 contact hours).

Class Time: Section 1; Wed 13:10-16:00).

Text Book: - Introduction to MATLAB for Engineers, Third Edition, William J. Palm III

- Lab. handouts and slides
- Mathworks website and user's guides

Course description: Programming lab for Mechatronics aims to introduce the students to CodeBlocks software in order to write different C++ programs. The second part of the lab aims to provide the students with the required knowledge and skills to use MATLAB software in order to solve different engineering problems, starting from using MATLAB software as a simple calculator to writing complete programs which solve different mathematical problems. The last part of the lab introduces the students to MATLAB/Simulink in order to simulate different mathematical models of mechanical and electrical systems.

Website: <http://www.philadelphia.edu.jo/academics/waraydah/>

Instructor: Name: Eng. Walaa S. Araydah

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Office: Engineering building, Mechatronics Department, room 6412, ext: 2591.

Office hours: Sun, Tues, Thurs: 11:15-1:15

Course Outlines:

Week	Basic and support material to be covered	Sections in the book
1	Introduction to C++ programming using CodeBlocks	Lab slides
2	Chapter 1: An Overview of MATLAB	1.1, 1.2, 1.3
3	Chapter 1: An Overview of MATLAB	1.4, 1.5, 1.6
4	Chapter 2: Numeric, Cell, and Structure Arrays	2.1, 2.2, 2.3
5	Chapter 2: Numeric, Cell, and Structure Arrays	2.4, 2.5
6	Chapter 3: Functions and Files	3.1, 3.2
7	Chapter 4: Programming with MATLAB	4.2, 4.3, 4.4
8	Chapter 4: Programming with MATLAB	4.5, 4.6, 4.7

9	Chapter 9: Numerical Methods for Calculus and Differential Equations	9.1, 9.2, 9.3, 9.4
10	Chapter 10: Simulink	10.1, 10.2
11	Symbolic Math Toolbox	MATLAB user's guide

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Write C++ programs using CodeBlocks.	[e, k]
2.	Use MATLAB software to solve mathematical problems.	[a, e, k]
3.	Write complete programs using MATLAB.	[e, k]
4.	Solve differential equations using MATLAB/Simulink.	[a, e, k]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Homework: The students will be asked to do 6 homework in which each homework covers part of the previous lectures.

Quizzes: 3-quizzes of 30-minutes will be conducted during the semester.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

Homework	30%
Quizzes	30%
Final Exam	40%
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Total:	100%

Attendance policy:

The semester has in total 33 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course.

October, 2019