School of Engineering and Natural Sciences / Industrial Engineering (English)

2023 - 2024 Academic Year

PROGRAMMING with MATLAB

Syllabus

Course Description					
Name	**Code**	**Semester**	**T+A Hour**	**Credit**	**ECTS**
PROGRAMMING with MATLAB	IND2149090	Fall Semester	2+2	3	6

Prerequisites Courses	
Recommended Elective Courses	
Language of Instruction	English
Course Level	First Cycle (Bachelor's Degree)
Course Type	Elective
Course Coordinator	Assoc.Prof. Atakan MANGIR
Name of Lecturer(s)	Abdullah Hulusi KÖKÇAM
Assistant(s)	
Aim	Learning to computer programming and calculation principles with gaining ability to develop open source programming codes and contributing to develop of engineering problem solving ability.
Course Content	This course contains; Introduction to Scientific and Engineering Computations,Introduction to Matlab Computing Environment,Variables, Operations and Simple Plot,Algorithms and Logic Operators,Flow Control, Errors and Source of Errors,Functions,Arrays,Solving Simple Equations,Examples on Polynomials,Applications of Curve Fitting,Applications of Interpolation ,Application of Numerical Integration,Symbolic Mathematics,Ordinary Differential Equation (ODE) Solutions with Built-in Functions.

Course Learning Outcomes	**Teaching Methods**	**Assessment Methods**
Analyze the contemporary issues of engineering problems.	12, 14, 16, 6, 8, 9	A, E, G
Relate them to the problem-solution methods.	12, 14, 16, 6, 8, 9	A, E, G
Develop the engineering problem solution methods.	12, 14, 16, 6, 8, 9	A, E, G
Implement engineering design.	12, 14, 16, 6, 8, 9	A, E, G
Prepare scientific report.	12, 14, 16, 6, 8, 9	A, E, G
Design engineering project.	12, 14, 16, 6, 8, 9	A, E, G

Teaching Methods	12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 6: Experiential Learning, 8: Flipped Classroom Learning, 9: Lecture Method
Assessment Methods	A: Traditional Written Exam, E: Homework, G: Quiz

Lecture Schedule

Sequence	**Topics**	**Preliminary Preparation**
1	Introduction to Scientific and Engineering Computations	Previewing book and lecture notes
2	Introduction to Matlab Computing Environment	Previewing book and lecture notes
3	Variables, Operations and Simple Plot	Previewing book and lecture notes
4	Algorithms and Logic Operators	Previewing book and lecture notes
5	Flow Control, Errors and Source of Errors	Previewing book and lecture notes
6	Functions	Previewing book and lecture notes
7	Arrays	Previewing book and lecture notes
8	Solving Simple Equations	Previewing book and lecture notes
9	Examples on Polynomials	Previewing book and lecture notes
10	Applications of Curve Fitting	Previewing book and lecture notes
11	Applications of Interpolation	Previewing book and lecture notes
12	Application of Numerical Integration	Previewing book and lecture notes
13	Symbolic Mathematics	Previewing book and lecture notes
14	Ordinary Differential Equation (ODE) Solutions with Built-in Functions	Previewing book and lecture notes

Evaluation Methods	**Weight(%)**
Midterm Exam	30
General Exam	70

Resources
William J. Palm, 2005, Introduction to Matlab 7 for Engineers, Mc Graw Hill.Brian H. Hahn, Daniel T. Valentine, 2017, Essential MATLAB for Engineers and Scientists, Academic Press