

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

**2022 - 2023 Academic Year**

**PROGRAMMING for ENGINEERS**

**Syllabus**

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
PROGRAMMING for ENGINEERS	IND3110759	Fall Semester	3+2	4	6
<b>Prerequisites Courses</b>	PROGRAMLAMAYA GİRİŞ				
<b>Recommended Elective Courses</b>	Object Oriented Design				
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Elective				
<b>Course Coordinator</b>	Prof.Dr. Mehmet Kemal ÖZDEMİR				
<b>Name of Lecturer(s)</b>	Prof.Dr. Mehmet Kemal ÖZDEMİR				
<b>Assistant(s)</b>					
<b>Aim</b>	This course introduces the basics of C programming language first, and then presents the introductory topics that lead to the development of C++. The objectives of the course are introducing the concept of algorithm and discuss the steps to be followed starting with the problem definition and ending with a running program to achieve the target, identifying the importance of modular programming and functions, identify the importance of pointers and dynamic memory allocation and extending the concept to the arrays, the concepts of strings, introducing the basic Object-Oriented Concepts and the discussion of its advantages. □□□				
<b>Course Content</b>	This course contains; Introduction to Computer Architecture and C Programming Language,Structured Program Development and Program Control,Modular Programming and functions,Arrays: Part 1,Arrays: Part 2,Pointers: Part 1,Pointers Part 2,Midterm,Characters and Strings,Formatted Input/Output,Structures,Unions,BitManipulationand Enumerations,File Processing,Data Structures,Computer-ScienceThinking, Preprocessors, and some other topics..				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
1. Understanding the main syntax for C programming.			1, 13, 15, 16	A, C, D, E	
2. Understanding of pointers, dynamic memory allocation, arrays, and strings in C.			1, 13, 15, 16	A, C, D, E	
3. Understanding the role of functions in C programming and the parameters of the functions.			1, 13, 15, 16	A, C, D, E	
4. Understanding the scope of variables and the role of pointers.			1, 13, 15, 16	A, C, D, E	
5. Understanding of the transition to C++.			1, 13, 15, 16	A, C, D, E	
<b>Teaching Methods</b>	1: Lecture, 13: Experiment / Laboratory, 15: Problem solving, 16: Project Based Learning				
<b>Assessment Methods</b>	A: Written Exam, C: Homework, D: Project / Design, E: Quiz				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Introduction to Computer Architecture and C Programming Language	Textbook Chapter 1-2 and Lecture Slides			
2	Structured Program Development and Program Control	Textbook Chapter 3-4 and Lecture Slides			
3	Modular Programming and functions	Textbook Chapter 5 and Lecture Slides			
4	Arrays: Part 1	Textbook Chapter 6 and Lecture Slides			
5	Arrays: Part 2	Textbook Chapter 6 and Lecture Slides			
6	Pointers: Part 1	Textbook Chapter 7 and Lecture Slides			
7	Pointers Part 2	Textbook Chapter 7 and Lecture Slides			
8	Midterm	All the topics covered by the end of the 8th week.			
9	Characters and Strings	Textbook Chapter 8 and Lecture Slides			
10	Formatted Input/Output	Textbook Chapter 9 and Lecture Slides			
11	Structures,Unions,BitManipulationand Enumerations	Textbook Chapter 10 and Lecture Slides			
12	File Processing	Textbook Chapters 11 and Lecture Slides			
13	Data Structures	Textbook Chapters 12 and Lecture Slides			
14	Computer-ScienceThinking, Preprocessors, and some other topics.	Textbook Chapter 13-15 and Lecture Slides			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		30			
General Exam		70			
<b>Resources</b>					
C How to Program, 9th edition by Paul J. Deitel (Author), Harvey Deitel (Author)Supplementary Text 1 : C How to Program by Deitel and Deitel (7th Edition), <a href="http://gph.sc.mahidol.ac.th/puwis/SCPY204/files/programming_in_C.pdf">http://gph.sc.mahidol.ac.th/puwis/SCPY204/files/programming_in_C.pdf</a> ,					