T.C.

ESKİŞEHİR OSMANGAZİ ÜNİVERSİTY

FACULTY OF SCIENCES

MATHEMATICS AND COMPUTER SCIENCES DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Computer programming II	821612007

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	**Practice**		
2	3	0		5

Course Category (Credit)				
Basic Sciences	**Engineering Sciences**	**Design**	**General Education**	**Social**
	X			

Course Language	Course Level	Course Type
Turkish	Undergraduate	Compulsory

Prerequisite(s) if any	None
Objectives of the Course	Learning the class and abstract peogramming and its applications to problems .
Short Course Content	Introduction to class, function overloading, operator overloading , inheritance , virtual functions, polymorfizm templates.

	Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1	Understanding and Applying Class Concepts: Students will gain the ability to understand the fundamental concepts and structures of classes, create their own classes, and perform object-oriented programming using these classes.	1, 2	1, 6	A
2	Function and Operator Overloading: Students will learn the concepts of function overloading and operator overloading, and will be able to apply these concepts to execute functions and operators with different data types in their programs.	1, 2, 2003	1, 10	A
3	Inheritance and Class Hierarchies: Students will use the concept of inheritance to establish hierarchical relationships between classes and will be able to develop more effective and modular software by reducing code repetition through these relationships.	2, 4, 2005	1, 6, 10	A
4	Virtual Functions and Polymorphism: Students will learn about virtual functions and polymorphism, enabling them to handle objects derived from different classes	2, 4, 5, 9	1, 10, 12	A

*Teaching Methods 1:Expression, **2:**Discussion, **3:**Experiment, **4:**Simulation, **5:**Question-Answer, **6:**Tutorial, **7:**Observation, **8:**Case Study, **9:**Technical Visit, **10:**Trouble/Problem Solving, **11:**Induvidual Work, **12:**Team/Group Work, **13:**Brain Storm, **14:**Project Design / Management, **15:**Report Preparation and/or Presentation

Measuring Methods A:Exam, **B:Quiz, **C:**Oral Exam, **D:**Homework, **E:**Report, **F:**Article Examination, **G:**Presentation, **I:**Experimental Skill, **J:**Project Observation, **K:**Class Attendance; **L:**Jury Exam

	through a common base class and perform dynamic function calls.			
5	Template-Based Generic Programming: Students will utilize template concepts to create generic classes and functions that work independently of data types, allowing them to write flexible and reusable code across various data types.	2, 3, 2005	1, 10, 12	A

Main Textbook	C++ from the ground up, Herbert Schildt
Supporting References	C++ programlama dilinin esasları ve uygulamaları , Prof. Dr. Mustafa Akkurt
Necessary Course Material	None

Course Schedule	
1	Introduction to Classes
2	Function Overloading
3	Operator Overloading
4	Operator Overloading
5	Inheritance
6	Problem Solving
7	Virtual Functions
8	Midterm Exam
9	Polymorphism
10	Templates
11	Templates
12	Introducing Standard Template Library
13	Introducing Standard Template Library
14	Problem Solving
15	Problem Solving
16	Final Exam
17	Final Exam

Calculation of Course Workload			
Activities	**Number**	**Time (Hour)**	**Total Workload (Hour)**
Course Time (number of course hours per week)	14	3	42
Classroom Studying Time (review, reinforcing, prestudy,….)	14	3	42
Homework			
Quiz Exam			
Studying for Quiz Exam			

*Teaching Methods 1:Expression, 2**:**Discussion, 3**:**Experiment, 4**:**Simulation, 5**:**Question-Answer, 6**:**Tutorial, 7**:**Observation, 8**:**Case Study, 9**:**Technical Visit, 10**:**Trouble/Problem Solving, 11**:**Induvidual Work, 12**:**Team/Group Work, 13**:**Brain Storm, 14**:**Project Design / Management, 15**:**Report Preparation and/or Presentation

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Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	20	20
Final Exam	1	2	2
Studying for Final Exam	1	30	30

Total workload	**138**
Total workload / 30	**4,6**
Course ECTS Credit	**5**

Evaluation	
Activity Type	**%**
Mid-term	50
Mid-term	
Homework	
Bir öğe seçin.	
Bir öğe seçin.	
Final Exam	50
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	**PROGRAM OUTCOME**	**Contribution**
1	The ability to apply knowledge of Mathematics and Computer Sciences.	3
2	To have sufficient theoretical and practical knowledge of Mathematics at an international level.	2
3	The ability to describe, model, and solve mathematical problems in Mathematics and related subjects.	1
4	The skill to solve and design a problem process in accordance with a defined target.	3
5	Skills to analyze data, interpret and apply it to other data, and use this data on computers.	3
6	The skill to use modern techniques and computational tools needed for mathematical applications.	1
7	The skill to work as a team within the discipline and interdisciplinary.	3
8	The ability to improve oneself by following developments in other modern, scientific, and technological subjects as well as in Mathematics and Computer Sciences.	2

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9	The skill to communicate orally and in written form, in a clear and concise manner, having individual work skills, independent decision-making ability, and analytical thinking.	2
10	The skill to have professional and ethical responsibility.	2
11	The skill to have consciousness for quality issues and scientific research.	3
12	The skill to be sensitive to environmental issues related to problems and the development of living areas, and to be consistent in social relations.	3
13	The ability to solve problems in working life by finding appropriate algorithms via mathematical modeling and writing computer programs.	3
14	The skill to develop designs of software systems at different complex levels.	3
15	The belief in the necessity of life-long learning and the ability to apply lifelong learning principles.	3

LECTUTER(S)				
Prepared by	Doç. Dr. Özer Çelik			
Signature(s)				

Date:06.06.2024

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