

INTRODUCTION TO NUMERICAL CALCULATION IN PHYSICS

1	Course Title:	INTRODUCTION TO NUMERICAL CALCULATION IN PHYSICS	
2	Course Code:	FZK2414	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	4	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. ORHAN GÜRLER	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	ogurler@uludag.edu.tr, 0 224 29 41 701, UÜ Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa	
17	Website:		
18	Objective of the Course:	The goal of the course is to introduce the C programming language generally and to understand the logic programming. Objectives of the course is to perform the mathematical and logical problems for physics on the computer.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Instructions for use. Structure of a C program. Variables are learned.
		2	Data types. Constants. Operators. Communication through console. Control Structures are learned.
		3	Functions. Arrays. String and Characters. Pointers. Dynamic Memory. Structures are learned.
		4	User defined data types. (typedef, union, enum). Classes. Relationships between classes are learned
		5	Namespaces. Input/Output with files. Graphics. Examples for Physics and Mathematics are learned.
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Instructions for use. Structure of a C program. Variables	Guided Problem Solving	

2	Data types. Constants. Communication through console	Guided Problem Solving
3	Control Structures. Functions. Arrays.	Guided Problem Solving
4	String and Characters	Guided Problem Solving
5	Dynamic Memory	Guided Problem Solving
6	Structures.	Guided Problem Solving
7	User defined data types. (typedef, union, enum).	Guided Problem Solving
8	Classes	Guided Problem Solving
9	Relationships between classes	Guided Problem Solving
10	Namespaces	Guided Problem Solving
11	Repeating courses and midterm exam	Guided Problem Solving
12	Input/Output with files.	Guided Problem Solving
13	Graphics. Examples for Physics and Mathematics.	Guided Problem Solving
14	General Review and Problem Solutions	Guided Problem Solving

22	Textbooks, References and/or Other Materials:	1 HASAN YILMAZ, C++ Örneklerle Programlama Dili, 2005; 2 Prof.Dr. MİTHAT UYSAL, C/C++ Problemler ve çözümleri, 2005
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Activites		Number	Duration (hour)	Total Work Load (hour)
Midterm Exam	1	40.00	3.00	42.00
Practicals/Labs		14	2.00	28.00
Home work project	0	0.00	3.00	39.00
Self study and preparation		13		
Homeworks		0	0.00	0.00
Total Projects	2	10.00	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	2.00	2.00
Others		14	5.00	70.00
Total Final Exams		1	2.00	2.00
Total Work Load				183.00
Course Total work load/ 30 hr				6.10
24. ECTS /WORK LOAD TABLE				
ECTS Credit of the Course				6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	4	2	0	4	0	4	0	3	4	2	1	0	0	0	0
ÖK2	3	3	2	0	4	0	3	0	3	3	2	1	0	0	0	0
ÖK3	4	4	2	0	3	0	4	0	3	3	2	1	0	0	0	0
ÖK4	3	4	2	0	4	0	3	0	3	4	2	1	0	0	0	0

ÖK5	4	3	2	0	3	0	3	0	3	4	2	1	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			