OBJECT ORIENTED PROGRAMMING

1	Course Title:	OBJECT ORIENTED PROGRAMMING
2	Course Code:	END2238
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	4
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	1.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	2
11	Prerequisites:	None
12	Language:	English
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Dr. Ögr. Üyesi ALKIN YURTKURAN
15	Course Lecturers:	Dr. Öğr. Üyesi Alkın YURTKURAN
16	Contact information of the Course Coordinator:	erdal@uludag.edu.tr Tel: 0224 294 2080 Endüstri Mühendisliği Bölümü, Mühendislik Fakültesi Uludağ Üniversitesi, Görükle, Bursa
17	Website:	UKEY
18	Objective of the Course:	To provide students with the information needed to understand the fundamentals of programming with Python and to present them with the information required to exercise the higher level concepts of object oriented programming methodology and design.
19	Contribution of the Course to Professional Development:	Python programming language is the basis of today's most widely used scientific computational programs and provides the most suitable environment for the management of industrial systems in terms of program design with its object-based programming approach.
20	Learning Outcomes:	

	1	To learn the characteristics that make a programming language object-oriented
	2	To be able to define software requirement specifications
	3	To be able to design use case and class diagrams using UML
	4	To be able to design sequence, colloboration and activity diagrams and user interfaces
	5	To be able to design a software by UML tools
	6	To be able to code programs in Python environment
	7	To be able to create classes and instances in Python
	8	To be able to use collections, arrays, lists, queues
	9	To be able to write codes in Python for GUI applications
	10	

21	Course Content:	

Course Content:	

Week	Theoretical	Practice

1	Rationale for Object Oriented Software Development	Introduction to Python
2	Identification of Classes and Objects	Data types, Strings
3	Modeling with UML	Variables, Operators
4	UML Modeling - Use Case Diagrams	Numbers, Boolean Logic, Lists
5	UML Modeling - Class Diagrams	Tuples, Dictionaries, Modules, Conditionals
6	UML Modeling - Sequence Diagrams	Control Loops, functions
7	UML Modeling - Activity Diagrams	OOD-Interactions Diagrams (Collaboration Diagrams)
8	UML Model Sample Case: Workflow Management	
9	Classes, Objects, Class and Instances, Variables in Python	App in Python
10	Inheritence and Polymorphism in Python	App in Python
11	Inheritence in Python	App in Python
12	Graphical User Interface in Python, Notebook Application in Python	App in Python
13	Exceptions in Python	App in Python
14	Case Study in Python	App in Python

| 22 | Textbooks, References and/or Other Materials: | Printed
1. Object Oriented Analysis and Design – Using UML, D. Jeya Mala, S Geetha, McGraw Hill, 2013. ISBN: 1-25-900674-3 (Print) ISBN: 93-329-0095-7 (ebook)
2. How to Code in Python 3, Lisa Tagliaferri, DigitalOcean |

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	12	1.00	12.00
Homeworks	2	10.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	1	10.00	10.00
Final Exams	1	10.00	10.00
Total Work Load			100.00
Total work load/ 30 hr			3.00
ECTS Credit of the Course			3.00

(Overlapping text in reference column: 4. Class Diagram Tutorial, (Links provided in UKEY) 5. Lecture Notes – Basic Python; Graphical User Interface Package: tkinter – Python; Code Examples (loaded in UKEY); Amos, Real Python, 2020, ISBN: 9781775093336; 1 Python Standard Library; UKEY))

		Software 1. Python Programing Environment: Anaconda > Spyder > (Editor, IPython Console, Variable Explorer) https://www.anaconda.com/distribution/ https://www.spyder-ide.org/ 2. Software Modeler using UML: StarUML 3, http://staruml.io/download 3. Software Modeler using UML: Lucidchart, https://www.lucidchart.com/pages/

23	Assesment

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	15.00
Quiz	0	0.00

Home work-project	2	25.00
Final Exam	1	60.00
Total	4	100.00
Contribution of Term (Year) Learning Activities to Success Grade	40.00	
Contribution of Final Exam to Success Grade	60.00	
Total	100.00	
Measurement and Evaluation Techniques Used in the Course	Multiple choice test and classical written test, Coding assignments	

24	ECTS / WORK LOAD TABLE

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	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	3	0	5	0	0	3	0	0	0	0	4	0	0	0	0
ÖK3	0	0	0	5	0	0	3	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	5	0	4	3	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ÖK9	0	0	0	5	0	3	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives		PQ: Program Qualifications		
Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High