

COURSE DESCRIPTION FORM	
Course Code and Name	CENG391 PYTHON PROGRAMMING (TECH. ELECT.)
Course Semester	5
Catalogue Data of the Course (<i>Course Content</i>)	Variables and simple data types, flow control, functions, lists, dictionaries and structuring, manipulating strings, classes and exceptions, pattern matching with regular expressions, file operations, data visualization, developing applications with GUI, developing web-based applications.
Course Textbooks	Python Crash Course, 3rd Edition: A Hands-On, Project-Based Introduction to Programming, by Eriz Matthes, No Starch Press, 2023.
Supplementary Textbooks	Automate The Boring Stuff With Python, 2nd Edition, by Al Sweigart, No Starch Press, 2019.
Credit (ECTS)	6
Prerequisites for the Course (<i>Attendance Requirements</i>)	Obligatory course attendance
Course Type	Selective
Language of Instruction	English
Course Objectives	Introducing Python programming basics including simple data types, flow control and program design with functions. The course discusses the fundamental principles of Object-Oriented Programming, as well as data and information processing techniques. Students will solve problems, explore real-world software development challenges, and create practical and contemporary applications.
Course Learning Outcomes	<ol style="list-style-type: none"> 1. Knows how to design and program Python applications. 2. Knows how to use lists, tuples, and dictionaries in Python programs. 3. Knows arrays and lists. 4. Knows how to write loops and decision statements in Python. 5. Knows how to write functions and pass arguments in Python. 6. Knows how to create Python modules. 7. Knows how to read and write files in Python. 8. Knows how to design object-oriented programs with Python classes. 9. Knows how to handle exceptions. 10. Knows how to perform file operations. 11. Knows visualizing data. 12. Knows how to develop applications with GUI. 13. Knows how to develop web-based applications.
Instruction Method (<i>Face-to-face, Distance education etc.</i>)	The mode of delivery of this course is face-to-face.
Weekly Schedule of the Course	<ol style="list-style-type: none"> 1. Variables and simple data types 2. Flow control 3. Functions 4. Lists 5. Dictionaries 6. Manipulating strings 7. Classes and exception handling 8. Pattern matching with regular expressions 9. File operations 10. Data visualization 11. Developing applications with GUI 12. Developing applications with GUI 13. Developing web-based applications 14. Developing web-based applications
Teaching Activities	Weekly theoretical course hours

<i>(The time spent for the activities listed here will determine the amount of credit required)</i>	Reading activities Internet search and library work Designing and implementing materials Making a report Midterm and revision for midterm Final exam and revision for final exam								
Assessment Criteria		Number(s)	Weight (%)						
	Midterm exam	1	30						
	Assignment	0							
	Application	0							
	Project	1	30						
	Practice	0							
	Quiz	0							
	Final exam	1	40						
Total	3	100							
Workload of the Course	Activity		Number of Weeks	Duration (Weekly Hour)	End of Semester Total Workload				
	Weekly theoretical course hours		14	3	42				
	Weekly practical course hours								
	Reading activities		14	1	14				
	Internet search and library work		14	2	28				
	Designing and implementing materials		3	10	30				
	Making a report		1	8	8				
	Preparing and making presentations								
	Midterm and revision for midterm		1	15	15				
	Final exam and revision for final exam		1	15	15				
	Total workload				152				
	Total workload/ 25				6,08				
Course Credit (ECTS)				6					
Contribution Level between Course Outcomes and Program Outcomes	No	Program Outcomes			1	2	3	4	5
	1	Knowledge of mathematics, science, basic engineering, computing, and computer engineering; ability to use this knowledge in solving complex engineering problems.					X		
	2	Ability to define, formulate and analyze complex engineering problems using basic science, mathematics and engineering knowledge and considering the UN Sustainable Development Goals relevant to the problems addressed.					X		
	3	Ability to design creative solutions to complex engineering problems; ability to design complex systems, processes, devices, software, algorithms or products to meet current and future requirements, considering realistic constraints and conditions.					X		
	4	Ability to select, use and develop appropriate techniques, resources and modern engineering and informatics tools, including estimation and modeling, for the analysis and solution of complex engineering problems while being aware of their limitations.				X			
	5	Ability to use research methods to examine complex engineering problems or research topics in computer engineering, including				X			

		reviewing the literature, designing experiments, conducting experiments, collecting data, analyzing and interpreting results.					
	6	Knowledge of the effects of engineering practices and the standards used in these practices on society, health and safety, economy, sustainability and environment within the scope of the UN Sustainable Development Goals; awareness of the consequences of engineering solutions in the fields of information security and law.					
	7	Acting in accordance with engineering professional principles and knowledge on ethical responsibility; awareness of acting impartially, without discrimination on any issue, and being inclusive of diversity.					
	8	Ability to work effectively individually and as a team member or leader in intradisciplinary and multidisciplinary teams (face-to-face, remote, or hybrid).		X			
	9	Ability to conduct effective verbal and written communication on technical issues in Turkish or English, prepare reports, make effective presentations and prepare software documentation, considering the various differences of the target audience (such as education, language, profession).				X	
	10	Knowledge of business practices such as project, risk and change management and economic feasibility analysis; awareness of entrepreneurship and innovation.		X			
	11	Lifelong learning skill that includes the ability to learn independently and continuously, to adapt to new and developing scientific practices and technologies, and to think inquisitively about technological changes.				X	
Lecturer(s) and Contact Information	Assoc. Prof. Dr. Ümit ATİLA umitatila@gazi.edu.tr						