

GAU, Faculty of Engineering

Course Unit Title	Introduction to Programming	
Course Unit Code	SEN101	
Type of Course Unit	Compulsory for SE	
Level of Course Unit	1st year BSc	
National Credits	3	
Number of ECTS Credits Allocated	6	
Theoretical (hour/week)	3	
Practice (hour/week)	0	
Laboratory (hour/week)	0	
Year of Study	1	
Semester when the course unit is delivered	1	
Mode of Delivery	Face to face, E-learning	
Language of Instruction	English	
Prerequisites		
Corequisites		
Recommended Optional Programme Components		
Objectives of the Course:		
<ul style="list-style-type: none"> • Introduce the fundamentals of programming, algorithmic problem solving, and software development using a high-level language • Develop student ability to design, implement, test, and debug small-scale software solutions • Provide practical experience with structured programming, modularity, and basic data structures • Encourage students to connect computational thinking with real-world problem solving 		
Learning Outcomes		
When this course has been completed the student should be able to		Assess.
1	Learn how to analyze simple computational problems and develop algorithmic solutions	1,3
2	Learn to use variables, control structures, functions, and basic data structures in Python programs	1,3
3	Learn how to debug, test, and improve simple software applications	1,3
4	Learn how to design modular programs using functions and file processing techniques	1,3
5	Understand the fundamentals of structured programming and good coding practice	1,3
6	Learn how to implement small projects that combine problem solving, program design, and testing	1,3
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab Work		
Course's Contribution to Program		
		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	3
2	Ability to design and conduct experiments as well as to analyze and interpret	2
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	2
4	Ability to apply systems thinking in problem solving	3
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	2
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	3
7	Ability to express their ideas and findings, in written and oral form	2

8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints		2
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner		2
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)			
Course Contents			
Week	Chapter	Subject	Exams
1	1	Introduction to Programming and Problem Solving	
2	2	Variables, Expressions, and Basic Input/Output	
3	3	Conditional Statements	
4	4	Loops and Iteration	
5	5	Functions and Modular Programming	
6	6	Lists, Tuples, and Dictionaries	
7	7	Strings and File Handling	
8			Midterm
9	8	Exceptions and Defensive Programming	
10	9	Searching, Sorting, and Basic Algorithms	
11	10	Introduction to Object-Oriented Programming	
12	11	Testing and Debugging	
13	12	Mini Project Development	
14	13	Course Review	
15			Final
Recommended Sources			
<ul style="list-style-type: none"> Textbook: Python Programming: An Introduction to Computer Science, 3rd Edition, John Zelle Supplementary: Think Python, 2nd Edition, Allen B. Downey Supplementary: Starting Out with Python, 5th Edition, Tony Gaddis 			
Assessment			
Midterm	30 %		
Final exam	40 %		
Assignments	20 %		
Quizzes	10 %		
ECTS Allocated Based on the Student Workload			
Activities	Number	Duration (hour)	Total Workload (hour)
In-class lecture (including exam weeks)	15	3	45
Midterm exam	1	1.5	1.5
Midterm exam preparation	1	15	15
Final exam	1	1.5	1.5
Final exam preparation	1	20	20
Quiz	3	2	6
Assignment	8	3	24
Project/presentation/report writing	1	8	8
Lab and tutorial	14	1	14
Self-study	15	2	30
Total Workload			165.00

Total Workload / 30 (h)	5.50
ECTS Credit of the Course	6