

MODULE DESCRIPTION FORM

Module Information			
Module Title	Programming		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	AIE116		
ECTS Credits	6		
SWL (hr/sem)	150 H/Sem.		
Module Level	1	Semester of Delivery	1
Administering Department	Artificial Intelligence Eng.		College
		College of Engineering	
Module Leader	Sarmad Kadhim Alkhfaji		e-mail
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Module Leader's Acad. Title	Assistant Prof.		Module Leader's Qualification
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Scientific Committee Approval Date			Version Number
		1.0	

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Introduction to Programming Fundamentals, Function Programming, Logical Operations, Sequences, Iterations, Strings and Text Processing, Data Structure Representation using Sets, Dictionaries, Error and Exception Handling, Versions and Version Control.



Module Learning Outcomes	Knowledge	A1	A1.1 Define the fundamental concepts of programming, including variables, data types, functions, and logical operations. A1.2 Recognize the syntax and structure of the Python programming language used to implement both functional and structured programming paradigms. A1.3 Explain how sequences, iterations, and control structures are applied to solve computational problems. A1.4 Identify appropriate data structures such as sets and dictionaries for representing and manipulating data efficiently. A1.5 Choose suitable programming constructs and methods for processing strings and text-based data. A1.6 Illustrate how errors and exceptions are handled in Python to maintain program stability and reliability. A1.7 Compare different approaches to version management and source code control using modern version control systems. A1.8 Distinguish between functional and procedural programming styles in terms of their design principles and applications.
		A4	A4.1 Label the basic programming elements in Python through hands-on exercises and examples. A4.2 Explain functional programming concepts and logical operations by implementing small coding tasks. A4.3 Select appropriate sequences, sets, and dictionaries for data representation in practical coding scenarios. A4.4 Apply iterations, functions, and string/text processing techniques to solve real-world programming problems. A4.5 Demonstrate proper handling of errors and exceptions in Python programs through lab exercises. A4.6 Analyze program behavior and outputs to debug, optimize, and improve code efficiency. A4.7 Examine version control workflows and collaborative coding practices using practical exercises.
	Skills	B1	B.1.1 Function efficiently as an individual B.1.2 Function as a member of multidisciplinary and multicultural teams.
		B3	B.3.1 Acquire and apply new knowledge. B.3.2 Practice the strategies of searching for information in life – long self-learning
	Ethics	C3	C.3.1 Utilize contemporary technologies C.3.2 Make use of codes of practice and standards, quality guidelines,

Indicative Contents	Indicative content includes the following. Unit 1: Introduction to Programming Fundamentals – Logical Operations [6 hours] Unit 2: Sequences – Iterations [8 hours] Unit 3: Strings and Text Processing [4 hours] Unit 4: Function Programming – Data Structure Representation using Sets and Dictionaries [8 hours] Unit 5: Error and Exception Handling – Versions and Version Control [4 hours]
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Learning and Teaching Strategies

Strategies	• Presentation • Interactive learning • Discussions • Brainstorming • Group Solving Problems • Problem-Based Learning • Self-learning
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Student Workload (SWL) for 15 weeks

Structured SWL (h/sem)	93	Structured SWL (h/w)	5.2
Unstructured SWL (h/sem)	57	Unstructured SWL (h/w)	4.8
Total SWL (h/sem)	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	A1, A4, B3
	Assignments	2	10% (10)	2, 4,6,8,10,12 and 14	A1, A4 , B3
	Projects / Lab.				A1, A4 ,,B1, B3
	Report	1	10% (10)	13	A1, B1, B3
Summative assessment	Midterm Exam	1hr	10% (10)	7	A1, A4, B1, B3
	Final Exam	3hr	50% (50)	15	A1, A4, B1, B3

Total assessment	100% (100 Marks)		
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Delivery Plan (Weekly Syllabus)		
المنهاج الاسبوعي النظري		
	Material Covered	Los
Week 1	Introduction to Programming Fundamentals	A1.1, A1.2, A4.1, B1.1, B3.1, B3.2, C3.1
Week 2	Function Programming	A1.1, A1.2, A4.2, B1.1, B3.1, B3.2, C3.1
Week 3	Logical Operations	A1.1, A1.2, A4.2, B1.1, B3.1, B3.2, C3.1
Week 4	Sequences	A1.3, A4.3, B1.1, B3.1, B3.2, C3.1
Week 5	Iterations	A1.3, A4.4, B1.1, B3.1, B3.2, C3.1
Week 6	Strings and Text Processing	A1.4, A4.4, B1.1, B3.1, B3.2, C3.1
Week 7	Data Structure Representation using Sets	A1.5, A4.3, B1.1, B3.1, B3.2, C3.1
Week 8	Data Structure Representation using Dictionaries	A1.5, A4.3, B1.1, B3.1, B3.2, C3.1
Week 9	Error and Exception Handling	A1.6, A4.5, A4.6, B1.1, B3.1, B3.2, C3.1, C3.2
Week 10	Mid -term EXAM	A1, B1
Week 11	Versions and Version Control	A1.7, A1.8, A4.7, B1.1, B3.1, B3.2, C3.1
Week 12	General Review of Basic Concepts	A1, B1, B3, C3
Week 13	Project Presentation	A1, B1, B3, C3
Week 14	- Rubric Exam - Preparatory week before the final Exam	A1, A4

Delivery Plan (Weekly Lab. Syllabus)		
المنهاج الاسبوعي للمختبر		
	Material Covered	Los
Week 1	Setting up the development environment and writing the first program	A4.1, B1.1, B3.1, B3.2, C3.1
Week 2	Function Programming	A4.2, B1.1, B3.1, B3.2, C3.1
Week 3	Logical Operations	A4.2, B1.1, B3.1, B3.2, C3.1
Week 4	Sequences	A4.3, B1.1, B3.1, B3.2, C3.1
Week 5	Iterations (Part 1)	A4.4, B1.1, B3.1, B3.2, C3.1
Week 6	Iterations (Part 2)	A4.4, B1.1, B3.1, B3.2, C3.1
Week 7	Strings and Text Processing	A4.4, B1.1, B3.1, B3.2, C3.1
Week 8	Data Structure Representation using Sets	A4.3, B1.1, B3.1, B3.2, C3.1
Week 9	Data Structure Representation using Dictionaries.	A4.3, B1.1, B3.1, B3.2, C3.1
Week 10	Error and Exception Handling	A4.5, A4.6, B1.1, B3.1, B3.2, C3.1, C3.2
Week 11	Mid -term EXAM	A1, B1
Week 12	Versions and Version Control	A4.7, B1.1, B3.1, B3.2, C3.1
Week 13	Mini Project	A1, A4, B1, B3, C3
Week 14	Final Lab Exam	A1, A4

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Mark Lutz, <i>Learning Python</i> , O'Reilly, 5th edition, 2013.	NO
Recommended Texts	Sommerville, <i>Software Engineering</i> , 10th edition, Pearson India, 2018.	NO
Websites	https://eng.alayen.edu.iq/colleges/e/42	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.