

" حيث تصبح الرؤية واقعاً"
 "When Vision Becomes
 Reality"

" عراقة وجودة"
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department Computer Science/AI	QF01/0408-3.0E
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Faculty	Faculty Of Science & IT	Department	Computer Science/AI
Course number	0142223	Course title	Artificial intelligence Programming
Number of credit hours	3	Pre-requisite/co-requisite	0120110

This course gains knowledge about basic python language syntax and semantics to write python programs and use concepts such as variables, conditional and iterative execution methods etc. Beside; understanding the fundamentals of object-oriented programming in Python, including defining classes, objects, invoking methods.”.

Course goals and learning outcomes	
Goal 1	Understand fundamentals of programming such as variables, conditional and iterative execution, methods, and arrays.
Learning outcomes	1.1 Knowledge of the structure and model of the Python programming language. 1.2 Use the Python programming language for various programming technologies.
Goal 2	Understand fundamentals of object-oriented programming in Python, including defining classes, invoking methods, using class libraries, etc.
Learning outcomes	2.1 Develop software in the Python programming language, 2.2 Propose the use of certain technologies by implementing them in the Python programming language to solve the given problem
Goal 3	Have the ability to write a python program to solve specified problems and object oriented problems
Learning outcomes	3.1 Choose an engineering approach to solving problems, and be a good software developer. 3.2 Evaluate user requirements for software functionality required to decide whether the Python programming language can meet user requirements
Textbook	Introduction to Computation and Programming Using Python with Application to Understanding Data, ISBN-10: 9780262529624 January 2017

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Supplementary references	<p>1- Python Tricks: A Buffet of Awesome Python Features Dan Bader, October 25, 2017).</p> <p>2- Programming in Python 3: A Complete Introduction to the Python Language Mark Summerfield, November 22, 2016 ISBN-13: 978-0321680563</p> <p>3- Head First Python, 2nd Edition. Paul Barry , ISBN: 9781491919521 , November 2016</p>
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Course timeline				
Week	Number of hours	Course topics	Pages (textbook)	Notes
01	1	The Basic Elements of Python	21-22	
	1	Objects, Expressions, and Numerical Types	23-24	
	1	Variables and Assignment, Python IDE's	25 - 27	
02	1	Branching Programs	28 – 29	
	1	Strings and Input	30 – 33	
	1	Iteration	34-36	
03	1	Exhaustive Enumeration	37-44	
	1	and while loops		
	1	For Loops		
04	1	Functions, Scoping, And Abstraction	50-67	
	1	Functions and Scoping		
	1	Recursion		
05	1	Practice class	21-67	
	1	First Exam		
	1	Answering Exam question and discussion		
06	1	Tuples	86-89	
	1	Sequences and Multiple Assignment, ranges, mutability	89-97	
	1	list comprehension	100-103	
07	1	Strings, Tuples, Ranges, and Lists	103-106	
	1	Dictionaries	106-112	
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08	1	Black-Box Testing	114-120	
	1	Glass-box Testing		
	1	Conducting Tests		

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09	1 1 1	Learning to Debug Designing the Experiment When the Going Gets Tough When You Have Found "The" Bug	120-129	
10	1 1 1	EXCEPTIONS AND ASSERTIONS Handling Exceptions Exceptions as a Control Flow Mechanism Assertions	129-141	
11	1 1 1	Practice and more examples Second Exam Answering Exam question and discussion	86-141	
12	1 1 1	CLASSES AND OBJECT-ORIENTED PROGRAMMING Abstract Data Types and Classes Designing Programs Using Abstract Data Types Using Classes to Keep Track of Students and Faculty	141-152	
13	1 1 1	Multiple Levels of Inheritance The Substitution Principle Encapsulation and Information Hiding Generators	152-159	
14	1 1 1	Thinking About Computational Complexity Asymptotic Notation Some Important Complexity Classes Constant Complexity logarithmic complexity Linear Complexity	177-189	
15	1 1 1	Review of previous chapters and solve more examples	-	
16	1 1 1	Final Exam	-	

Theoretical course evaluation methods and weight	Participation = 10% First exam 20% Second exam 20% Final exam 50%	Practical (clinical) course evaluation methods	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%
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Approved by head of department		Date of approval	
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Extra information (to be updated every semester by corresponding faculty member)

Name of teacher		Office Number	
Phone number (extension)		Email	
Office hours			