اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Computer Programming
Course Code:	48021503-3
Program:	First year Engineering Track.
Department:	Computer science
College:	Common First Year Deanship
Institution:	Umm Al-Qura University

Table of Contents

A. Course Identification

1. Credit hours:	

2. Course type

a.   University ☐   College ☐   Department ■   Others ☐

b.   Required ■   Elective ☐

3. Level/year at which this course is offered: 2nd Semester of First Year

4. Pre-requisites for this course (if any)**:**
-

5. Co-requisites for this course (if any)**:**
- None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom		100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	45
3	Tutorial	
4	Others (specify)	
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

In this course, we shall cover the following topics:
- Numbering Systems (Decimal, Binary, and Hexadecimal).
- Conversion between numbering systems; data representation and coding.
- General Problem Solving Concepts, Introduction to Programming and Programming Languages (Python language).
- Introducing the concept of problem solving for computer programming and problem-solving tools
- The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms.
- Fundamentals of writing, compiling, and executing codes.
- Basic types, variables, assignment, expressions, comments, identifiers, constants
- Lists, tuples, and dictionaries.
- Formatted Input/Output
- Logical expressions and selection structures
- Repetition and Loop Statements
- Functions

2. Course Main Objective

- Conversion between numbering systems.
- Acquire an introductory knowledge of problem solving and a sound knowledge of basic computer programming concepts (Python).

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Numbering Systems (Decimal, Binary, Hexadecimal)	
1.2	Conversion between numbering systems; data representation and coding	
1.3	General Problem Solving Concepts, flowcharts, pseudocode	
١,٤	Introducing the concept of problem solving for computer programming	
١,٥	The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms	
١,٦	String And Numeric Data, Lists, Tuples and Dictionaries	
١,٧	Logical expressions and selection structures	
١,٨	Repetition and Loop Statements	
١,٩	Functions.	
2	**Skills :**	
2.1	Effective Learning skills	
2.2	Self-assessment and development	
2.3	Productive effective and interactive discussion skills	
2.٤	Following the learner manners and ethics including; commitment, respect and communication with confidence	
3	**Values:**	
3.1	Contribute the suitable technology to solve problems.	
3.2	Collaborate effectively in a multidisciplinary team.	

C. Course Content

No	List of Topics	Contact Hours
1	Numbering Systems (Decimal, Binary, Hexadecimal)	٥
2	Problem Solving	٥
3	Introduction to Python	١٠
4	String and Numeric Data in Python	١٥
5	Lists, Tuples and Dictionaries	١٠
6	Control Flow Tools (if statement)	١٠
7	Control Flow Tools (for and while loops)	١٠
8	Functions	١٠
Total		75

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Numbering Systems (Decimal, Binary, Hexadecimal)	• Practical Labs • Internet and e-learning	• Quizzes • Mid-term examination • Practical examination • Final exam
1.2	Conversion between numbering systems; data representation and coding.		
1.3	General Problem Solving Concepts, Introduction to Programming and Programming Languages		
1.4	Beginning Problem Solving Concepts for the Computer Programming, Problem Solving Tools		
1.5	The formal definition of an Algorithm; representing Algorithms; the efficiency of Algorithms; Analysis of Algorithms.		
1.6	Problem Solving with the Sequential Logic Structure.		
1.7	Problem Solving with Decisions and Case Logic Structure.		
1.8	Problem Solving with Loops.		
1.9	Functions.		
2.0	**Skills**		
2.1	Effective Learning skills	• Formal lectures. • Lab activities. • Group discussions	• Class participation • Assignments • Quizzes • Practical written exams
2.2	Self-assessment and development.		
3.0	**Values**		
3.1	Collaborate effectively in a multidisciplinary team.	• Collaborative learning • Active learning • Learning by discovering	• Peer-evaluating • Peer assessment.
3.2	Contribute the suitable technology to solve problems.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes and Labs	4-12	15%
2	Practical	15	15%
3	Midterm	8	30%
4	Final	16	40%
	Total		100%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

- Quizzes:
  - Quiz1: Week 4 | Chap 1.
  - Quiz2: Week 6 | Chap 2.
  - Quiz3: Week 10 | Chap 3-4.

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Office hours: during which students are encouraged to visit their instructor for help, conversation practice and clarifying difficult concepts (4 hours a week).
- Responding to inquiries and suggestions through the official accounts of the instructor in the available social media account.
- Contacting instructors through e-mail account provided by the university (5 days from 8 AM to 5 PM).
- Through Blackboard.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	• A practical Introduction to Python Programming • Fundamentals of Python Programming
Essential References Materials	

Electronic Materials	• Lectures Slides
	• Blackboard content includes:
	  • Labs
	  • Assignments

Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	• Data show • Computers • Blackboard
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Python compiler is used

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	• Faculty	- Feedback from students
Effectiveness of Assessment	• Head of department	- Regular course instructor's meetings - Comprehensive annual review and planning - Feedback from members of various stakeholders of interest
Extent of Achievement of Course Learning Outcomes	Peer Reviewer	- Peer-reviewing for examinations by checking random samples of student work and exam -Analyzing the exam questions

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Vice Dean of Common First Year for Academic Affairs, Dr Ahmad Fawzi Arbaeen
Reference No.	_
Date	27/3/2022