Course Specification
(Bachelor)

Course Title:	Programming Fundamentals
Course Code:	181CIS-3
Program	Information Systems
Department	Computer Department
College:	Applied College
Institution	:Najran University
Version	: 3
Last Revision Date:	1-10-2024

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A. General information about the course:

1. Course Identification

1. Credit hours: (3 hours)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Frist year, level 1)					
4. Course General Description:					
This course is about Computer Programming Fundamentals using python programming language. It includes Understand fundamental terms and definitions, Understand Python's logic and structure, literals and variables, operators and data types, Input/Output console operations, decisions and flow. This course is essential for obtaining the professional certificate PCEP (PCEP-30-02), and updated periodically according to the certificate exam					
5. Pre-requirements for this course (if any):					
NO					
6. Co-requisites for this course (if any):					
NO					
7. Course Main Objective(s):					
This course is intended to: • Provide students with a good understanding of concepts and terminology related to the Computer Programming using Python Language. • Enable students to translate the real computing problems into a programms that solve it. • Develop the programming skills and experience needed to write Python language programs. Enable students to communicate with others effectively to solve real computing Problems.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours per week	100%
2	E-learning		

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define the basic concepts of programming language, algorithm, flowchart, and program structure.	K1	Lecture Individual and group discussions	• Exams Assignments
1.2	Understand the language syntax, statements, and derived data types	K3	Lecture Individual and group discussions	• Exams Assignments
...	Write python programs	K2	Lecture Individual and group discussions	• Exams Assignments
2.0	**Skills**			
2.1	Design programs to solve problems	S1	• Lecture • Brainstorming	• Exam • Group Reports

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			• Small Group Work • Lab Demonstration Project	Lab Reports
2.2	Write flowcharts to understand the program modules	S2	• Lecture • Brainstorming • Small Group Work • Lab Demonstration Project	• Exam • Group Reports Lab Reports
...				
3.0	**Values, autonomy, and responsibility**			
3.1	Demonstrate projects and assignments in the work team to design and develop areas of technical support	V2	• Lecture • Brainstorming • Small Group Work • Lab Demonstration • Project	• Exam • Group Reports • Lab Reports
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	**Computer Programming and Python Fundamentals: (18% of exam – 7 exam items)**	
2.	**Understand fundamental terms and definitions** • interpreting and the interpreter, compilation and the compiler lexis, syntax, and semantics	6
3.	**Understand Python's logic and structure** • keywords • instructions • indentation comments	4
4.	**Introduce literals and variables into code and use different numeral systems** • Boolean, integers, floating-point numbers • scientific notation • Strings • binary, octal, decimal, and hexadecimal numeral systems • variables • naming conventions	10

	implementing PEP-8 recommendation	
5.	**Choose operators and data types adequate to the problem** • numeric operators: ** * / % // + – • string operators: * + • assignment and shortcut operators • unary and binary operators • priorities and binding • bitwise operators: ~ & ^ | << >> • Boolean operators: not, and, or • Boolean expressions • relational operators (== != > >= < <=) • the accuracy of floating-point numbers type casting	9
6.	**Perform Input/Output console operations** • the print() and input() functions • the sep= and end= keyword parameters the int() and float() functions	6
7.	**Control Flow – Conditional Blocks and Loops: (29% of exam – 8 exam items)**	
8.	**Make decisions and branch the flow with the if instruction** • conditional statements: if, if-else, if-elif, if-elif-else • multiple conditional statements nesting conditional statements	12
9.	**Perform different types of iterations** • the pass instruction • building loops with while, for, range(), and in • iterating through sequences • expanding loops with while-else and for-else • nesting loops and conditional statements controlling loop execution with break and continue	12
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Middle-Term Exam	8	30%
2.	Assignments	10	10%
3.	Practical Exam	15	20%
4.	Final exam	17	50%

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
5.			

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Python Essentials - Part 1 (Basics) https://edube.org/study/pe1
Supportive References	The Python Language Reference The Python Language Reference — Python 3.11.3 documentation
Electronic Materials	https://www.python.org/doc/
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture rooms should be large enough to accommodate the number of registered students
Technology equipment (projector, smart board, software)	Black Board/Data Show
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	***Student***	***Questioners***
Effectiveness of Students assessment	Staff committee	Cross checking
Quality of learning resources	Faculty Administration	Review and check the results
The extent to which CLOs have been achieved	Quality management in the department	A review of the measurement of learning outcomes
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	