هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title: **Programming Fundamentals**	
Course Code: **181CIS-3**	
Program: **Programming and Database**	
Department: **Computer department**	
College: **Applied college**	
Institution: **Najran university**	
Version: **T -104 2022**	
Last Revision Date: 7 Aug 2023	

Table of Contents:

A. General information about the course:

Course Identification

1. Credit hours:	3(2+1)				
2. Course type					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			

3. Level/year at which this course is offered:
١nd Level

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):
None

6. Co- requirements for this course (if any):
None

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.

1. Teaching mode **(mark all that apply)**

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	4 hours per week	٩٥%
2.	E-learning		٥%
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		100%

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	3٠
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 CLOs aligned with 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	Lecturers Labs	Exam Quiz Assignment
1.2	Understand the language syntax, statements, and derived data types	K3	Lecturers Labs	Exam Quiz Assignment
1.3	Write python programs	K3		
2.0	Skills			
2.1	Design programs to solve problems	S1	Lecturers Labs	Exam Quiz Assignment
2.2	Write flowcharts to understand the program modules	S1	Lecturers Labs	Exam Presentation
…	fix errors in python programs	S1		
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate projects and assignments in teamwork for	V3	Project Small group report	Presentation

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	designing and developing python programs			
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
	Computer Programming and Python Fundamentals: (18% of exam – 7 exam items)	
1	**Understand fundamental terms and definitions** • interpreting and the interpreter, compilation and the compiler • lexis, syntax, and semantics	6
2	**Understand Python's logic and structure** • keywords • instructions • indentation • comments	4
3	**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 • implementing PEP-8 recommendation	10
4	**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
5	**Perform Input/Output console operations**	6

	• the print() and input() functions • the sep= and end= keyword parameters • the int() and float() functions	
6	Mid Term Exam	1
	Control Flow – Conditional Blocks and Loops: (29% of exam – 8 exam items)	
7	**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
8	**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
		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm exam	8	20%
2.	Homework's	From 3 to 14	10%
3.	Practical exam	15	20%
4	Final exam	16	50%

*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
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom with a suitable size for students
Technology Resources (AV, data show, Smart Board, software, etc.)	Whiteboard/projector
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Direct: Questioners
Effectiveness of students assessment	Teacher Audit and review committees	Direct: CW & HW Exercises and short quizzes Projects Mid and final paper exams.
Quality of learning resources	Teachers and course description committees	Indirect: Benchmarking Self-evaluation External evaluation
The extent to which CLOs have been achieved	Teacher	Direct: Measuring the learning outcomes
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

الكلية التطبيقية
جامعة نجران
NAJRAN UNIVERSITY
APPLIED COLLEGE