Course Specification
— (Bachelor)

Course Title: Structured Programming

Course Code: 183CIS-3

Program: Programming and Database

Department: Computer department

College: Applied college

Institution: Najran university

Version: TP -153- 2024

Last Revision Date: 2 OCT 2024

Table of Contents:

A. General information about the course:

1. Credit hours: (2+1)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required			☐Elective	

3. Level/year at which this course is offered: (……….)

4. Course General Description:

This course is about Computer Programming Fundamentals using python programming language. It includes Data Collections: Tuples, Dictionaries, Lists, and Strings, Functions and Exceptions. 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):

181CIS-3

6. Co-requisites 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.**

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	4 hours per week	95%
2.	E-learning		5%
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		100%

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 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,	K3	Lecturers Labs	Exam Quiz

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	statements, and derived data types			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 designing and developing python programs	V3	Project Small group report	Presentation
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
	Data Collections – Tuples, Dictionaries, Lists, and Strings (25% of exam – 7 exam items)	
1	Collect and process data using lists • constructing vectors • indexing and slicing • the len() function • list methods: append(), insert(), index(), etc. • functions: len(), sorted() • the del instruction	10

	- iterating through lists with the for loop - initializing loops 4 - the in and not in operators - list comprehensions - copying and cloning - lists in lists: matrices and cubes	
2	**Collect and process data using tuples** - tuples: indexing, slicing, building, immutability - tuples vs. lists: similarities and differences - lists inside tuples and tuples inside lists	6
3	**Collect and process data using dictionaries** - dictionaries: building, indexing, adding and removing keys - iterating through dictionaries and their keys and values - checking the existence of keys - methods: keys(), items(), and values()	6
4	**Operate with strings** - constructing strings - indexing, slicing, immutability - escaping using the \ character - quotes and apostrophes inside strings - multi-line strings - basic string functions and methods	8
	Functions and Exceptions (28% of exam – 8 exam items)	
5	**Decompose the code using functions** - defining and invoking user-defined functions and generators - the return keyword, returning results - the None keyword recursion	8
6	**Organize interaction between the function and its environment** - parameters vs. arguments - positional, keyword, and mixed argument passing 5 - default parameter values name scopes, name hiding (shadowing), and the global keyword	8
7	**Mid Term Exam**	
8	**Python Built-In Exceptions Hierarchy** **BaseException** **Exception** **SystemExit**	10

	• KeyboardInterrupt • abstract exceptions • ArithmeticError • LookupError • IndexError • KeyError • TypeError • ValueError	
Total		**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 2 to 12	10%
3.	Practical exam	16	20%
4	Final exam	17	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	