Faculty: Information Technology	
Department: Data Science and Artificial Intelligence	**Program:** Bachelor
Academic year:	**Semester:**

Course Plan

First: Course Information

Course No.:1505101	Course Title: *Programming in Python*	Credit Hours:3	Theoretical:3	Practical:
Prerequisite No. and Title:1501110 Computer Programming (1)		Section No.:1	Lecture Time:	
Level in JNQF	6			

Type Of Course:
☐ *Obligatory University Requirement*   ☐ *Elective University Requirement*
☐ *Obligatory Faculty Requirement*   ☐ *Elective Faculty Requirement*
■ *Obligatory Specialization Requirement*   ☐ *Elective Specialization Requirement*
☐ *Ancillary course*

Type of Learning:
■ *Face-to-Face Learning*
☐ *Blended Learning (2 Face-to-Face + 1 Asynchronous)*
☐ *Online Learning (2 Synchronous+ 1 Asynchronous)*

Second: Instructor's Information

Course Coordinator:		
Name:	Academic Rank:	
Office Number:	Extension Number:	Email:
Course Instructor		
Name:	Academic Rank: Assistant Professor	
Office Number:	Extension Number:	Email:
Office Hours:	Sunday Monday Tuesday Wednesday Thursday	

Third: Course Description

This course is intended for students with previous programming experiences as introductory course. Students will gain the basic knowledge and experience to solve simple programming problems using different Python packages. The course is designed to provide Basic knowledge of Python. The practical work associated with the course enables students to learn how to edit, compile, run, and test programs that cover all aspects of the Python language addressed in lectures. Through the tutorial system, they are also given practice in evaluating and implementing designs produced by others. The Project is designed to enhance the students' teamwork skills and to further develop their interpersonal and communication skills.

Fourth: Course Objectives

1. Know basic terms such as variables, data types, control structures, lists, functions
2. Build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions
3. Developing the student's ability to create simple Python program to provide solve simple basic problems.
4. Expanding the student's skills of designing and solving programming problems by breaking down the problem into smaller tasks and applying appropriate packages to solve it.
5. Providing the student with the skills of debugging to identify and fix common programming errors.

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	CILOs Code	CILOs If any CLO will not be assessed in the course, mark NA.	Associated PILOs Code Choose one PILO for each CILO*	Assessment method Choose at least two methods
Knowledge	**K1**	List the main term of Python	**PK1**	• Quizzes • Mid-term Exam • Final Exam
	K2	Show the basic packages in Python	**PK1**	• Quizzes • Mid-term Exam • Final Exam
Skills	**S1**	Develop python programming using main basic of Python programming language	**PS1**	• Quizzes • Mid-term Exam • Final Exam
	S2	Apply methods from already existing classes, define their own classes and objects, and be able to establish communication between objects	**PS1**	• Quizzes • Mid-term Exam • Final Exam
	S3	Solve problems using appropriate package	**PS2**	• Quizzes • Mid-term Exam • Final Exam
	S4	Examine Java programs to find errors and bugs in the code.	**PS3**	• Quizzes • Mid-term Exam • Final Exam
Competencies	**C1**	Work individually and within a group to design a Python program.	**PC1**	• Participating • Project
	C2	Present the final project and make a demo.	**PC2**	• Participating • Project

*CILOs: Course Intended Learning Outcomes; PILOs: Program Intended Learning Outcomes; For each CILO, the PILO could be the same or different.

Sixth: Learning Resources

Main Reference:	*Starting Out with Python*
Author: Tony Gaddis	*Issue No.:5ᵗʰ ed.* *Print:* *Publication Year: 2021*
Additional Sources and Websites:	• *Python Data Analytics, Fabio Nelli, 2ⁿᵈ edition, 2018* • *Python Programming: an Introduction to Computer Science, John Zelle, 3ʳᵈ edition, 2016.*
Teaching Type:	■ *Classroom* ☐ *Laboratory* ☐ *Workshop* ■ *MS Teams* ■ *Moodle*

Seventh: Course Structure

Week	Course Intended Teaching Outcomes (CILOs)	Topics	Teaching Procedures*	Teaching Methods**	References***
Week 1	K1	• Installing Python • Introduction to Programming • Writing your First Python Program • Variables and Data Types	Face-to-Face	Lecture, In-class Questions	Appendix A, Chapter 1
Week 2	K1, S1	• Basic input/output • Arithmetic, Logical, Assignment, Arithmetic, and Comparision Operators	Face-to-Face	Lecture, In-class Questions	Chapter 2
Week 3	K1, S1	• Conditions: • If –elif –else • Operators • Logical Operators • Loops • While loop	Face-to-Face	Lecture, In-class Questions	Chapter 3, 4
Week 4	K1, S1, S2	• Functions • Modular programming • Math Functions	Face-to-Face	Lecture, In-class Questions	Chapter 5
Week 5	K1, S1, S2	• List • Tuples	Face-to-Face	Lecture, In-class Questions	Chapter 7

Week 6	K1, S1, S2	• Tuples • Dictionary	Face-to-Face	Lecture, In-class Questions	Chapter 7, 9
Week 7	K2, S1, S2, S3, S4	• NumPy • Array creation • Indexing on ndarrays • Splitting the lines into columns • NumPy • skip_header and skip_footer • usecols • Choosing the data type	Face-to-Face	Lecture, In-class Questions	Paython Data Analytics- Chapter 3
Week 8	K2, S1, S2, S3, S4	• NumPy • Array types and conversions between types • Choosing the data type • Manipulating and Displaying Structured Datatypes	Face-to-Face	Lecture, In-class Questions	Paython Data Analytics- Chapter 3
Midterm Exams					
Week 9	K2, S1, S2, S3, S4	• File Methods • Text and Binary files • file.open() and file.close() • Access Mode	Face-to-Face	Lecture, In-class Questions	Chapter 6
Week 10	K2, S1, S2, S3, S4	• Pandas • Basic data structures in pandas (series and DataFrame) • Create series • Create DataFrame • Import and Export (CSV)	Face-to-Face	Lecture, In-class Questions	Paython Data Analytics- Chapter 4
Week 11	K2, S1, S2, S3, S4	• Matplotlib • Plotting x and y points • Matplotlib • Matplotlib Marker • Matplotlib Line • Matplotlib labels • Matplotlib Scatter	Face-to-Face	Lecture, In-class Questions	Paython Data Analytics- Chapter 7

Week 12	K2, S1, S2, S3, S4	• Matplotlib Bars • Matplotlib Histogram • Matplotlib Pie Chart • Matplotlib Matplotlib Pie Chart	Face-to-Face	Lecture, In-class Questions	Paython Data Analytics- Chapter 7
Week 13	S1, S2, S3, S4, C1, C2	Project Description	Face-to-Face	Lecture, In-class Questions	
Week 14	S1, S2, S3, S4, C1, C2	Project Description	Face-to-Face	Lecture, In-class Questions	
Final Exams					

*Teaching procedures: (Face-to-Face, synchronous, asynchronous).   ** Teaching methods: (Lecture, video….).
*** Reference: (Pages of the book, recorded lecture, video….)

Eighth: Assessment Methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Specific Course Output to be assessed **If any CILO will not be assessed in the course, mark NA.							
				K1	K2	S1	S2	S3	S4	C1	C2
First Exam											
Second Exam											
Mid-term Exam			30	✓	✓	✓	✓	✓	✓		
Participation			5							✓	
Asynchronous Activities											
Quizzes			5			✓	✓	✓	✓		
Assignments											
Group presentation			10							✓	✓
Final Exam			50	✓	✓	✓	✓	✓	✓		
Total out of 100											

Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).