QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Cyber Security Department

Study plan No.	**2024/2025**		**University Specialization**		**Cybersecurity**
Course No.	**0133333**		**Course name**		**Programming for Cybersecurity**
Credit Hours	**3**		**Prerequisite Co-requisite**		**Infrastructure Security Using Linux**
Course type	☐ MANDATORY UNIVERSITY REQUIREMENT	☐ UNIVERSITY ELECTIVE REQUIREMENTS	☐ FACULTY MANDATORY REQUIREMENT	☐ Support course family requirements	☐ ✓ **Mandatory requirements** ☐ Elective Requirements
Teaching style	☐ **Full online learning**		☐ Blended learning		☐ ✓Traditional learning
Teaching model	☐ 2Synchronous: 1asynchronous		☐ 2 face to face : 1synchronous		☐ 3 ✓Traditional

Faculty member and study divisions information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail
Eman Abu Maria	Instructor	231	-	Eman.maria@zuj.edu.jo

Division number	Time	Place	Number of students	Teaching style	Approved model

Brief description

In this course, the basic and advanced concepts in Python language are introduced to write python scripts using variables, conditional statements, strings, methods, lists, tuples dictionary, etc. Additionally, it provides a basic introduction to some security libraries

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	• **Python Programming for Beginner** by Philip Robbins (Author), Emmanuel Oyibo (Editor) **2025** • **Python for Cybersecurity Cookbook:** 80+ practical recipes for detecting, defending, and responding to Cyber threats **2023** by Nishant Krishna			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	• **Python for Cybersecurity:** Using Python for Cyber Offense and Defense 1st Edition **2022** • **Mastering Python for Networking and Security:** Leverage the scripts and libraries of Python version 3.7 and beyond to overcome networking and security issues **2021** by José Ortega			
Supporting websites	• https://docs.python.org/ • https://www.w3schools.com/python/			
The physical environment for teaching	☐ **Class room**	☐ ✓labs	☐ **Virtual educational platform**	☐ Others

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Necessary equipment and software	**Spyder:** https://www.spyder-ide.org/ **PyCharm**: https://www.jetbrains.com/pycharm/download/?section=windows
Supporting people with special needs	
For technical support	E-learning and Open Educational Center. Computer Center

Course learning outcomes (S= *Skills, C= Competences K= Knowledge,)*

No.	Course learning outcomes	The associated program learning output code
	Knowledge	
K1	Understand the fundamentals of python such as variables, conditional statements, and functions	**MK1**
K2	Differentiate between Strings and Sequences and their use.	**MK2**
	Skills	
S1	Use security libraries in Python.	**MS1**
S2	Implement structure and model of the Python programming language.	**MS2**
S3	Use Python programming language for various programming applications.	**MS2**
S4	Implement software in the Python programming language for security applications.	**MS2**
	Competences	
C1	Design and develop a small project using Python Programming language	**MC1**

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
First exam	0	0	0	**0**
Second / midterm exam	%30	%30	%30	**%30**
Participation / practical applications	0	0	0	**0**
Asynchronous interactive activities	%30	%30	%30	**%30**
final exam	%40	%40	%40	**%40**

Note: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

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Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style*	Reference **
1	Introduction to Python Programming	Lectures	Lecture Notes
2	Control Statements and Program Development	Lectures	Lecture Notes
3	Control Statements and Program Development	Lectures	Lecture Notes
4	Strings: A deeper look	Lectures	Lecture Notes
5	Functions	Lectures	Lecture Notes
6	Sequences: Lists and Tuples	Lectures	Lecture Notes
7	Dictionaries and Sets	Lectures	Lecture Notes
8	**Midterm Exam**		
9	Python Nmap	Lectures	Lecture Notes
10	HTTP Programming and Web Authentication	Lectures	Lecture Notes
11	Python sockets	Lectures	Lecture Notes
12	Analyzing Network Traffic and Packet Sniffing	Lectures	Lecture Notes
13	Interacting with FTP, SFTP, and SSH Servers	Lectures	Lecture Notes
14	Python cryptography	Lectures	Lecture Notes
15	**Projects Discussion**	Lectures	
16	**Final Exam**		

*** Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.**

**** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.**

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
4	**Project idea submission:** include the project title, a brief description, and the names of the team members.		
14	**Project submission**		
15	**Project discussion**		