Course E-Syllabus

1	Course title	Programming for Cyber Security
2	Course number	1911211
3	Credit hours	3
	Contact hours (theory, practical)	(0, 3)
4	Prerequisites	1911101 Principles of Security 1902110 Object Oriented Programming
5	Program title	Cyber Security
6	Program code	1911
7	Awarding institution	The university of Jordan
8	School	King Abdullah II School for Information Technology
9	Department	Computer Systems Department
10	Level of course	2nd year
11	Year of study and semester (s)	Two –One
12	Final Qualification	Passing Grade
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Teaching methodology	Lecture
16	Electronic platform(s)	☒Moodle ☐Microsoft Teams ☐Skype ☐Zoom ☐Others……
17	Date of production/revision	23/2/2023

18 Course Coordinator:

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19 Other instructors:

none

QF-AQAC-03.02.1.3

20 Course Description:

This course helps students learn the essentials for programming in Python 3 https://www.python.org/. Python is high-level programming language similar to Java, C++, or C#. This course provides students with the required skills to solve problems by implementing programs using Python. Topics include: fundamentals of Python programming, Object-Oriented programming using Python, Data Structures and Algorithms, and Python packages. This course is a lab-based course which includes in-class practical assignments and tasks

21. Course aims and outcomes:

A- **Course aims and outcomes: Aims:**

The main goal of this course is to develop programming skills using Python for students. The excellent
programming skills enable students to solve problems by designing solutions and implementing these solutions
using Python.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

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A. Knowledge and Understanding: students should
A1. Understand the fundamentals of programming using Python.
A2. Understand the concepts of object-oriented programming using Python.
A3. Understand the data structures and algorithms in Python.
A4. Understand the concepts of Python Packages.
B. Intellectual Skills: students should be able to:
B1. Compare between the syntax of different high-level programming languages.
B2. Compare between data structures in Python and other programming languages.
B3. Compare between the different Python packages and their uses.
C. Subject Specific Skills: students should be able to:
C1. Be familiar with IDLE and Python shell for writing programs.
C2. Be familiar with the errors that could be encountered while writing programs in Python.
C3. Be able to identify and debug the errors that could be encountered while writing programs in
Python.
C4. Use the Python Packages to implement applications.
D. Transferable Skills: students should be able to:
D1. Work in groups as well as individually to write programs in Python.
D2. Work individually to debug their programs.
D3. Work in groups to design and implement a programming project using Python

22. Topic Outline and Schedule:

Week	Topic	Schedule/ Resources	Assignments (Done by every Sunday BEFORE class)
One	**Introduction to Blended Learning**	**Orientation** **Registering and Creating a moodle account. Reading the Blended Learning `How to' Guide**	
Two	**Introduction to:** • **Python Overview** • **Installing and beginning use of Python 3** • **Elementary Programming**	**Solving in class worksheet and instructor prepared PPT** **Read chapters 1 & 2 of the book and the provided PPT** **Class discussion**	**Assignments 1**
Three	**Mathematical Functions, Strings, and Objects.**	**Read chapter 3 of the book and the provided PPT** **Class discussion**	**Assignments 2**
Four	**Selections**	**Read chapter 4 of the book and the provided PPT** **Class discussion**	**Assignments 3**
Five	**Loop**	**Read chapter 5 of the book and the provided PPT** **Class discussion**	**Assignments 4**
Six	**Functions**	**Read chapter 6 of the book and the provided PPT** **Class discussion**	**Assignments 5**
Seven	**Objects and Classes**	**Read chapter 7 of the book and the provided PPT** **Class discussion**	**Assignments 6**
Eight	**Mid-term Exam + Review of Exam**		
Nine and Ten	**More on Strings and Special Methods**	**Read chapters 8, 10 & 11 of the book and the provided PPT**	**Assignments 7**

	• Lists • Multidimensional Lists	Solving in class worksheet and instructor prepared PPT Class discussion	
Eleven	Tuples, Sets, and Dictionaries	Read chapter 14 of the book and the provided PPT Solving in class worksheet and instructor prepared PPT Class discussion	Assignments 8
Twelve and Thirteen	Socket Programming	Read chapters 12 of the book and the provided PPT Solving in class worksheet and instructor prepared PPT Class discussion	Assignments 9
Fourteen	Operating System Library	Solving in class worksheet and instructor prepared PPT Class discussion	Assignments 10
Fifteen	Penetration Testing and Ethical Hacking Programming	Solving in class worksheet and instructor prepared PPT Class Discussion	Assignments 11
Sixteen	Final Exam		

23 Evaluation Methods:

Development of ILOs is promoted through the following teaching and learning methods:

- **Blended Learning + Flipped Learning**

24 Course Requirements:

Assessment (A) Methods: There will be several assessment methods to evaluate the performance of the students such as class participation, grading the project; conducting the Midterm and the Final Exams. Every student is expected to completely adhere to the project strict deadlines; absolutely no exceptions will be given

In class practical exercises & Quizzes	**10%**
Midterm Exam	**30%**
Assignments	**10%**
Final Exam	**50%**

Satisfactory completion of this subject requires a 50% pass in the end-of-semester examination

25 Course Policies:

A-This course is designed to be two-thirds class meetings and one-third online learning. This meansthat you are expected to attend class at the university every Sunday and Tuesday. You are also expected to participate in online discussions, collaborate and work with your fellow students, and prepare and complete any assigned homework.

B- Attendance policies: Class attendance is mandatory. University regulations will be applied.Regular attendance is essential for satisfactory completion of this course.

C- Absences from exams and handing in assignments on time: Any student who misses any exam willreceive a failing grade. Permission for makeup will be granted only if the student notifies the instructor in due time and presents evidence of an officially excused absence.

D- Health and safety procedures: University ensures health and safety procedures inside computerlabs.

E- Honesty policy regarding cheating, plagiarism, misbehavior: The honor code applies to all work turned in for this course including exams and assignments. It is important that you understand the solutions to all problems, and the best way to gain an understanding is to work them out and write them up by yourself. Hence the policy is that you must submit your own work. You may not share your work with other students, unless it is allowed as group. Violating the policy will be taken as a no submission state for the assignment. University regulations will be preserved at all times.

F- Grading policy + Weighting (i.e. weight assigned to exams as well as other student work)

0-45	**F**	**46-49**	**D-**	**50-52**	**D**	**53-55**	**D+**
56-58	**C-**	**59-61**	**C**	**62-68**	**C+**	**69-72**	**B-**
73-76	**B**	**77-82**	**B+**	**83-86**	**A-**	**87-100**	**A**

G- Available university services that support achievement in the course:
Computer Labs
KASIT Library and JU Main library.

H- Statement on Students with disabilities
Students with Disabilities: Students with disabilities who need special accommodations for this class are encouraged to meet with the instructor and/or their academic advisor as soon as possible. In orderto receive accommodations for academic work in this course, students must inform the course instructor and/or their academic advisor, preferably in a written format, about their needs no later thanthe 4th week of classes.

Required equipment: (Facilities, Tools, Labs, Training….)
Computer Lab **Required software: Python 3**

26 References: .

A- Required book (s), assigned reading and audio-visuals:

Y. Daniel Liang (2013) Introduction to Programming Using Python 3, Prentice Hall ISBN 13: 978-0-13-274718-9
ISBN 10: 0-13-274718-9

B- Recommended books, materials, and media:
Python Software Foundation: https://www.python.org/
Download Python 3.4.2: https://www.python.org/downloads/
Python 3.4.2 documentation: https://docs.python.org/3/
Google's Python Class: https://developers.google.com/edu/python/
A good tutorial website; Python Tutor (external website). http://pythontutor.com/

27 Additional information:

Course Assessment:

- **Online Assessment (20)**
  - Note: You start the course with 20/20. Do your best to keep this grade. You lose points only if you fall short in one of the following:
    - Quiz (10)
      - You will get three quizzes in class each one in 5 marks and get the highest 2 of them. All quizzes will be write the code program.
    - Assignments (10)
      - For each completed assignment you will receive a grade out of 10. Your final assignments grade is taken as an average at the end of the semester for a total of 10 points. (Note: Your grade is not based on whether you answer right or wrong, but rather on how honest an effort you put into the assignment)

- **In-Class Assessment (80)**

  ✓ Mid-term Exam (30)
  ✓ Final Exam (50)
    - Part of the Final exam material will be from the course material.
    - Some exam questions may be taken from within the discussion forums throughout the semester

Name of Course Coordinator: Mohammed S Atoum Signature: Date: 26/2/2021
Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department:..... Signature: .....

Head of curriculum committee/Faculty: ---------- Signature: ----------

Dean:---------- Signature: .....