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.	**0125443**		**Course name**		**Network Monitoring and Documentation**		
Credit Hours	**3**		**Prerequisite Co-requisite**				
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	
Adnan Hnaif	**professor**	**323**		**Adnan_hnaif@zuj.edu.jo**	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**
0125	**12:30-02**	**9249**	**24**	**Traditional**	

Brief description

This course covers standard information that a network administrator can use to monitor, analyze, and troubleshoot a group of distributed local area networks (LANs) and interconnecting T-1/E-1 and T-2/E-3 lines from a central site. The course emphasizes "learning by doing", and requires students to conduct a series of lab exercises. Through these labs, students can enhance their understanding of the principles, and be able to apply those principles to solve real problems.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Robert Collins, Network Security Monitoring: Basics for Beginners. A Practical Guide, CreateSpace Independent Publishing Platform, 2017			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. https://www.wireshark.org/ 2. https://www.techtarget.com/searchnetworking/definition/SNMP 3. https://www.paessler.com/prtg 4. https://sourceforge.net/projects/inetmonportable/files/ 5. https://www.snort.org/ 6. UVExplorer.com			
Supporting websites	https://www.catonetworks.com/network-security/network-security-protocols/			
The physical environment for teaching	☐ **Class room**	☐ ✓labs	☐ **Virtual educational platform**	☐ Others

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

Necessary equipment and software	**Wireshark, SNMP Agent, MIB bowser, Passler, UVExplorer**
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 network protocols and analyze network traffic effectively.	**3**
K2	understanding of security considerations in network monitoring, including potential risks and privacy issues.	**1**
K3	Students should grasp the principles and best practices of network documentation.	**3**
	Skills	
S1	Develop the ability to analyze large volumes of network data, draw meaningful insights, and interpret the significance of network patterns, anomalies, and performance metrics	**6**
	Competences	
C1	Using network monitoring tools and software	**11**
C2	Detect any suspicious activity in the network	**12**

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.

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

Week	Subject	learning style*	Reference **
1	Introduction to Network Monitoring	**Lecture**	**content on the e-learning platform**
2	Study the lab or any infrastructure to be used	**Lecture**	**content on the e-learning platform**

3	Download and install Wireshark	**Lecture**	**content on the e-learning platform**
4	Download and install SNMP agent and MIB browser	**Lecture**	**content on the e-learning platform**
5	Download and install Passler (PRTG)	**Lecture**	**content on the e-learning platform**
6			
7			
8	**Midterm Exam**		
9	Download and install UVExplorer and connect it with PRTG	**Lecture**	**content on the e-learning platform**
10	Prepare the documentation	**Lecture**	**content on the e-learning platform**
11	Monitor the network traffic in order to detect any malicious activity	**Lecture**	**content on the e-learning platform**
12	Project completion and discussion	**Lecture**	**content on the e-learning platform**
13			
14			
15			
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
1	Programming packet capture using Python	Python Library	To equip the student with the skill of programming a tool to capture packets
2	Building a user interface to use the tool	Python	Programming skills for an easy-to-use tool to capture packets
3	Adding a feature to the tool for Wireshark	Python	Outperforming Wireshark in packet analysis
4	Download PRTG Tool	PRTG website	Using the tool with high skill to analyze the network
5			
6			
7			
8			