

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Network Security		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	EE323UN		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	3	Semester of Delivery	2
Administering Department		College	Computer Engineering
Module Leader	Saman H. Amen		e-mail
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	None		e-mail
Peer Reviewer Name	1.	e-mail	
Scientific Committee Approval Date	1 / 4 /2026	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	This course examines information security services and mechanisms in a network context. Cryptographic tools such as message authentication codes, hash functions, digital signatures, and digital certificates are covered. Also, the course includes other topics such as access control, intrusion detection, database security, Internet security, and common threats on them.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Use basic cryptographic techniques in software and system design 2. Apply security methods for authentication, access control, intrusion detection, and prevention 3. Identify and mitigate security vulnerabilities in existing systems 4. Evaluate the security risks of systems and perform security audits 5. Identify and critique the ethical and legal issues in system security 6. Work efficiently in a team

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1- Provide students with opportunities to engage in realistic scenarios and apply their knowledge to solve security challenges. By actively participating in simulated attacks, vulnerability assessments, and defensive strategies, students can gain practical experience and develop problem-solving skills. 2- The integration of case studies and real-world examples. Network security is a constantly evolving field and learning from real-life incidents and breaches can help students understand the implications of security vulnerabilities and the importance of proactive measures. Analyzing case studies can enhance critical thinking abilities, risk assessment, and decision-making skills in the context of network security. 3- The context of network security should encompass hands-on experiences, real-world examples, collaboration, interactive methods, and industry involvement. By incorporating these strategies, educators can empower students to develop the knowledge, skills, and mindset necessary to navigate the complex and ever-changing landscape of network security.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
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الحمل الدراسي المنتظم للطلاب خلال الفصل		الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	6	10% (10)	5 and 12	LO #1 and #3
	Assignments	4	10% (10)	3 and 10	LO #1 and #2
	Projects / Lab.	1	10% (10)	Continuous	All
	Report/ Seminar	1	10% (10)	4 and 13	LO #4 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Network Security
Week 2	Network Security Threats
Week 3	Cryptography Fundamentals (part 1)
Week 4	Cryptography Fundamentals (part 2)
Week 5	Network Authentication
Week 6	Network Access Control
Week 7	Key Distribution and certification
Week 8	Mid-term Exam
Week 9	Virtual Private Networks
Week 10	Security in different layers
Week 11	Wireless Network Security
Week 12	Intrusion Detection and Prevention
Week 13	Perimeter Security
Week 14	Emerging Security Technologies
Week 15	Legal, Ethical, and Regulatory Aspects of Cybersecurity
Week 16	Final Review and Exam Preparation

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Network Security Tools
Week 2	Lab 2: Identifying Network Security Threats
Week 3	Lab 3: Cryptography Fundamentals (Part 1) – Symmetric Encryption
Week 4	Lab 4: Cryptography Fundamentals (Part 2) – Asymmetric Encryption and Hashing
Week 5	Lab 5: Network Authentication and Password Security
Week 6	Lab 6: Network Access Control and Firewall Configuration
Week 7	Lab 7: Key Distribution and Certificate Management
Week 8	Lab 8: Configuring Virtual Private Networks (VPNs)
Week 9	Lab 9: Security at Different Layers (OSI Model Security)
Week 10	Lab 10: Wireless Network Security and Attacks
Week 11	Lab 11: Intrusion Detection and Prevention Systems (IDS/IPS)
Week 12	Lab 12: Perimeter Security and Penetration Testing
Week 13	Lab 14: Emerging Security Technologies (SIEM, Zero Trust, AI in Security)
Week 14	Lab 15: Legal, Ethical, and Regulatory Aspects (Capture the Flag - CTF Challenge)
Week 15	Project Presentations/Lab Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	William Stallings and Lawrie Brown. Computer Security: Principles and Practice (4th Edition). 2017. Pearson, ISBN 9780134794105	Yes

Websites	https://seedsecuritylabs.org/Labs_16.04/Networking/
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Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				