	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Aircraft Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	Computer Sciences ||	**Module Delivery**	
Module Type	SUPLEMENT	**Theory**	
Module Code	UOWA201		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	2	**Semester of Delivery**	4
Administering Department	Aircraft Engineering	**College**	Engineering
Module Leader	Alaa Akram	**e-mail**	alaa.ak@uowa.edu.iq
Module Leader's Acad. Title	Asst. Lect	**Module Leader's Qualification**	MS.c.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name		**e-mail**	
Review Committee Approval	01/01/2025	**Version Number**	2024

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	• **Understanding the fundamentals of computer networks:** This includes learning about network topologies, protocols, and devices, as well as how data is transmitted and routed across networks. • **Understanding the fundamentals of artificial intelligence:** This includes learning about different AI techniques, such as machine learning, natural language processing, and computer vision, as well as how to apply them to solve real-world problems. • **Integrating network and AI concepts:** This involves learning how to use AI techniques to improve network performance, security, and reliability, as well as how to use networks to support AI applications. • **Developing practical skills:** This includes gaining hands-on experience with network and AI tools and technologies, as well as learning how to design, implement, and evaluate network and AI systems. • **Exploring ethical and societal implications:** This involves considering the ethical and societal implications of network and AI technologies, such as privacy, security, and bias. Overall, the aim of a network and AI course is to provide students with the knowledge and skills they need to design, develop, and deploy innovative solutions that leverage the power of both networks and AI.
Module Learning Outcomes	**Knowledge and Understanding:** • **Network Fundamentals:** Demonstrate a comprehensive understanding of network topologies, protocols (TCP/IP, HTTP, etc.), addressing schemes (IPv4, IPv6), and network devices (routers, switches, firewalls). • **AI Fundamentals:** Explain core AI concepts such as machine learning (supervised, unsupervised, reinforcement learning), deep learning, natural language processing, and computer vision. • **Network and AI Integration:** Describe how AI techniques can be applied to network management, security, optimization, and traffic analysis. Conversely, explain how network infrastructure supports AI applications (e.g., distributed training, data collection). • **Ethical Considerations:** Discuss the ethical and societal implications of network and AI technologies, including privacy, security, bias, and

	job displacement. **Skills (Practical and Cognitive):** • **Network Configuration and Management:** Configure and manage network devices, troubleshoot network issues, and implement network security measures. • **Problem Solving:** Apply network and AI principles to solve real-world problems, such as network optimization, intrusion detection, or predictive maintenance. • **Critical Thinking:** Critically evaluate the strengths and weaknesses of different network and AI approaches. • **Communication:** Effectively communicate technical concepts related to networks and AI, both orally and in writing. **Other Potential Outcomes (Attitudes/Professional Skills):** • **Teamwork:** Collaborate effectively with others on network and AI projects. • **Lifelong Learning:** Demonstrate an ability to keep up with the rapidly evolving fields of networks and AI. • **Professional Ethics:** Adhere to ethical principles in the development and deployment of network and AI systems.
Indicative Contents	**Networks:** Basic types, how data travels, simple devices (routers, switches), and intro to security. **AI:** What it is, basic machine learning (supervised/unsupervised), and simple algorithms. **Network & AI Integration:** AI for network optimization/security, networks for AI (cloud). **Ethics:** Basic concepts of responsible AI, bias, and privacy. **Hands-on:** Simple network simulations and exploring AI demos. Focus on concepts, not deep technical details.
Learning and Teaching Strategies	
Strategies	The course will use the following teaching and learning methods • Board (Normal or Smart) • Computers • Presentation software such as PowerPoint

Student Workload (SWL)			
Structured SWL (h/sem)	48	**Structured SWL (h/w)**	2
Unstructured SWL (h/sem)	27	**Unstructured SWL (h/w)**	1
Total SWL (h/sem)	75		

Module Evaluation					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	20% (20)	3,6,9,12	All
	Assignments	2	10% (10)	5, 10	All
	Projects / Lab.	Lab. 4	10% (10)	Continuous	All
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	2 hrs.	10% (10)	7	All
	Final Exam	3 hrs.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Security and Networking: What is a network? Types of networks. Basic network components.
Week 2	Security and Networking (Cont.): Network Security Basics. Understanding network threats.
Week 3	E-Commerce: Concepts of Electronic banking services this include online banking: ATM and debit card services, Phone banking, SMS banking, electronic alert, Mobile banking
Week 4	Computer Troubleshooting: Identifying and solving common hardware and software problems that computer users encounter.
Week 5	Computer Troubleshooting (Cont.): Basic troubleshooting techniques and tools for diagnosing and resolving issues.
Week 6	Introduction to Al: Definition of Al, History of Al, Al Techniques and Approaches.
Week 7	Introduction to Al(Cont.): Key Characteristics of Al, Benefits of Al, Challenges and Ethical considerations.
Week 8	The Role of Al in Modern Smartphones: Al-Driven Mobile Technologies, Virtual Assistants (Siri, Google Assistant, Alexa).
Week 9	The Role of Al in Modern Smartphones (Cont.): Adaptive Learning, Real-Time

	Translation Services.
Week 10	Applications and Tools of Al: Overview of Al Applications in Various Industries, Education and Healthcare.
Week 11	Applications and Tools of Al (Cont.): Transportation, Marketing and Advertising.
Week 12	Applications and Tools of Al(Cont.): Finance, Robotics and Automation Technologies.
Week 13	Al and Society: How Al affects social, Al and international relations, Al and the future of humanity.
Week 14	Ethical Challenges in Al: Al ethics, privacy and surveillance, the impact of Al on the job market.
Week 15	The Future of Al: Future trends in Al, recent research and emerging technologies.
Week 16	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	1. Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 2. Alan Evans, Kendall Martin, Mary Anne Poatsy, "Technology In Action Complete". 16th Edition (2020). 3. Ahmed Banafa, "Introduction to Artificial Intelligence (AI)", 1st Edition (2024). 4. Microsoft Office 2019 Step by Step 1st Edition by Curtis Frye & Joan Lambert	Yes
Recommended Texts	" الخضر علي الخضر بحاث " أساسيات الحاسوب" 2016 الدكتور عادل عبد النور, مدخل إلى عالم الذكاء الاصطناعي " 2005	No
Websites		

APPENDIX:

GRADING SCHEME				
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	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded

(0 – 49)	**F** – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.