	Ministry of Higher Education and Scientific Research - Iraq Al-Mustaqbal University College for engineering and technology Department of Biomedical Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		

Module Title	Computer (AI Applications)	Module Delivery
Module Type	B	✓ ⊠ **Theory**
Module Code	UOMU0101045	✓ ⊠ **Lecture**
ECTS Credits	3	✓ ⊠ **Lab**
		✓ ☐ **Tutorial**
SWL (hr/sem)	75	✓ ☐ **Practical**
		✓ ☐ **Seminar**

Module Level	2	Semester of Delivery	3
Administering Department	BME	**College**	EN
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval		**Version Number**	1.0

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer	**Semester**	2
Co-requisites module	Computer Programming with PYTHON	**Semester**	5

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course aims to provide students with advanced knowledge in computer science, focusing on networking, e-commerce, and Artificial Intelligence (AI). Students will learn about network security, electronic banking services, and AI concepts, including techniques, ethical considerations, and real-world applications. The course also covers troubleshooting common hardware and software issues. By the end, students will understand AI's societal impact, future trends, and how to apply AI in fields like healthcare, finance, and education. The goal is to equip students with practical and theoretical skills for modern technological challenges.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, the student will be able to: 1. Explain basic networking concepts, including types of networks and security measures. 2. Describe electronic banking services and their applications in e-commerce. 3. Identify and resolve common hardware and software problems. 4. Define AI, its history, techniques, and approaches. 5. Analyze AI applications in daily life (e.g., smartphones, virtual assistants). 6. Evaluate AI's impact on healthcare, finance, and transportation sectors. 7. Discuss ethical challenges related to AI, including privacy and job market effects. 8. Explore future trends and emerging technologies in AI.
Indicative Contents المحتويات الإرشادية	This course covers advanced topics in computer science, with a focus on AI and networking. Theoretical lessons include network basics, e-commerce, and AI principles (history, techniques, ethics). Practical sessions emphasize MATLAB programming for AI applications, such as data analysis and algorithm implementation. Students will examine AI's role in healthcare, finance, and marketing, alongside ethical debates. The course also addresses troubleshooting techniques for technical issues. Assessment includes exams and hands-on MATLAB projects. Recommended readings include Introduction to Artificial Intelligence by Ahmed Banafa and other resources on AI and networking. The curriculum ensures students gain both theoretical knowledge and programming skills.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The following strategies will be adopted in delivering this module: • Starting with the most simplified level information then gradually building up to the required level. • Encouraging the students to participate in the exercises, while at the

same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by the assignments handed to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	4 and 10	LO # 2 and 6
	Onsite Assignments	2	5% (5)	4 and 10	LO # 3 and 7
	Online Assignments	2	5% (5)	4 and 10	LO # 1 and 5
	Lab.	12	15% (15)	Continuous	All
	Seminar	1	5% (5)	Continuous	All
	Report	1	5% (5)	14	LO # 4 and 8
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Networking and Network Security

Week 2	Types of Networks: LAN, WAN, and Basic Components
Week 3	Network Threats and Security Measures
Week 4	E-Commerce and Electronic Banking Services
Week 5	ATM, Mobile Banking, and Online Transactions
Week 6	Computer Troubleshooting: Common Issues and Solutions
Week 7	**Mid-term Exam +**
Week 8	Introduction to AI: Definitions and History
Week 9	AI Techniques and Approaches
Week 10	AI in Daily Life: Smartphones and Virtual Assistants
Week 11	AI Applications in Healthcare, Finance, and Transportation
Week 12	AI and Society: Social and Ethical Impacts
Week 13	Ethical Challenges in AI: Privacy and Surveillance
Week 14	Future Trends in AI and Emerging Technologies
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to MATLAB: Interface & Basic Operations
Week 2	MATLAB Variables & Data Types
Week 3	Working with Vectors and Matrices
Week 4	Mathematical Functions & Script Writing
Week 5	Matrix Operations & Linear Algebra Basics
Week 6	Conditional Statements & Loops (if, for, while)
Week 7	Practical Test
Week 8	Writing Custom Functions in MATLAB
Week 9	Data Visualization: 2D & 3D Plotting
Week 10	Advanced Calculations & Symbolic Math
Week 11	Importing & Analyzing Data from Files

Week 12	Basic AI Application: Linear Regression
Week 13	Simple AI-Based System
Week 14	Practical Test

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Introduction to Artificial Intelligence (AI), Ahmed Banafa, (2024) • MATLAB for Beginners: A Gentle Approach, Peter Kattan	No
Recommended Texts	Cambridge IGCSE Information and Communication Technology, Graham Brown, David Watson, (2020) Technology In Action Complete, Alan Evans, Kendall , Martin, Mary Anne Poatsy, (2020).	No
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	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.