MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Technology**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**AIDC113**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		1	**Semester of Delivery**		1
Administering Department		AI	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- Provide a basic knowledge of computer hardware and software - Introduce the business areas to which computers may be applied. - Provide an introduction to business organization and information systems. - Develop the skills in network & communication , which play an important part in business computing and information processing
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- The student should understand the architecture of any IT systems. - The student should understand the parts of hardware. - The student should understand the system software. - The student should understand the architecture of networks ,protocols and communications devices.
Indicative Contents المحتويات الإرشادية	Data Conversion · D/A converters · A/D converters · Sample and Hold circuits Digital Component Operations · Multiplexing · Data storage · Integrated Circuits Digital Technology · Memory Technology · Circuit Board Technology · Nano-Technology

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- The student should use utilities in the lab to apply scientific experiment - The ability to execute the applications software .

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem)	**125**		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction of Computers and Programming
Week 2	Brief history of computer
Week 3	Generation of Computers & Computer hierarchy
Week 4	Basic Computer Components
Week 5	Computer function (fetch cycle, interrupt cycle, I/O function
Week 6	Semiconductor main memory (RAM, ROM, CACHE)
Week 7	Midterm Exam
Week 8	Computer Software(application software)
Week 9	External & Internal memory
Week 10	Telecommunications system & Network
Week 11	Topology of a network and layering
Week 12	data representation
Week 13	Multimedia
Week 14	Computer Security
Week 15	All Topics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Basic Computer Components
Week 2	Computer function (fetch cycle, interrupt cycle, I/O function
Week 3	Computer function (fetch cycle, interrupt cycle, I/O function
Week 4	Semiconductor main memory (RAM, ROM, CACHE)
Week 5	Computer Software(application software)
Week 6	Computer Software(application software)
Week 7	External & Internal memory
Week 8	External & Internal memory
Week 9	Telecommunications system & Network
Week 10	Topology of a network
Week 11	Topology of a network
Week 12	Layering model
Week 13	Layering model
Week 14	Protocols
Week 15	addressing communications

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1.Computing Essentials Making IT work for you 2017 by Timothy J. O'Leary. 2.Computer Organization and Architecture Designing for Performance (8th Edition).	No
Recommended Texts		No
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	**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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**الديموقراطية وحقوق الإنسان**			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOA005**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		1
Administering Department		AI	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	أ . تعليم الطلبة على أساسيات حقوق الإنسان وقوانينها . ب. التعرف على الحقوق وأهم الإشكاليات والتحديات التي تواجهها ج- تحديد وفهم المفاهيم المتعلقة بالحريات، بما في ذلك الحقوق الفردية والحريات الشخصية . د. تنمية القدرة على التفكير النقدي حول القضايا المتعلقة بالحريات والحقوق الفردية.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- أن يعرف الطالب مفهوم الحقوق وقوانينها وتطبيقاتها . 2- أن يعرف الطالب كيفية المشاركة في نشر الحقوق وتطبيقها بالعمل الواقعي الحقيقي. 3- القدرة على استخدام الحقوق وسيلة من أجل التعايش السلمي بين مكونات المجتمع وجميع المخلوقات . 4- القدرة على مشاركة الآخرين في نشر هذه الحقوق . 5- القدرة على تحليل وتعريف مفهوم الحرية والتمييز بين أنواع مختلفة من الحريات. 6- التفاعل مع قضايا الحريات على الصعيدين الوطني والدولي والتأثير في تشكيل الرأي العام.
Indicative Contents المحتويات الإرشادية	الحقوق والحريات الأساسية وغير الأساسية الحقوق والحريات المدنية الحقوق السياسية حقوق الانسان والقانون الدولي الإنساني

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- المشاركة بالتحضير في قاعة الدرس 2- طريقة الأسئلة والأجوبة في قاعة الدرس 3- الواجبات 4- التقارير

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1		Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	مفهوم الديمقراطية ومميزاتها
Week 2	الديمقراطية المباشرة
Week 3	الديمقراطية شبه المباشرة
Week 4	الديمقراطية غير المباشرة
Week 5	ركائز الديمقراطية
Week 6	آليات الديمقراطية
Week 7	تعريف حقوق الإنسان
Week 8	امتحان
Week 9	الحقوق الأساسية وغير الأساسية
Week 10	الحقوق المدنية
Week 11	الحقوق السياسية
Week 12	الحقوق الاقتصادية والاجتماعية والثقافية
Week 13	الحقوق الفردية والحقوق الجماعية وطائفة الحقوق الجديدة
Week 14	حقوق الإنسان والقانون الدولي الإنساني
Week 15	حقوق الإنسان في الإسلام

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Diamond L. & M. F. Plattner, eds., (2009), Democracy. A Reader, Baltimore, Johns Hopkins University Press.	yes
Recommended Texts	مفهوم الحريات العامة وحقوق الانسان ، إطارها التاريخي والفكري والفلسفي، وضماناتها الأساسية- 2010	
Websites	**http://ghrorg-learning.blogspot.com**	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language I**			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOA003**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Artificial Intelligence		**College**	Computer Science and Information Technology	
Module Leader	Kibrea Abdul-Kadhim Jasim		**e-mail**	Kibrea.a.jasim@uoanbar.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	Asst.Lec.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Enhance Language Proficiency: The course aims to enhance students' language proficiency in English, including their reading, writing, speaking, and listening skills. It focuses on improving grammar, vocabulary, pronunciation, and overall communication abilities
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Developing advanced reading comprehension skills and critical analysis of various texts. Enhancing writing skills across different genres and formats. Improving oral communication and presentation skills. Expanding language proficiency in English, including grammar, vocabulary, and pronunciation. Analyzing and interpreting literary works from diverse genres and periods. Conducting effective research and demonstrating information literacy. Cultivating critical thinking skills and forming well-supported opinions. Enhancing intercultural communication and understanding. Fostering creativity and imaginative expression through literature and writing. Cultivating a love for lifelong learning in the field of English.
Indicative Contents المحتويات الإرشادية	Study of various literary genres, such as poetry, drama, and prose. Analysis of literary works from different periods and cultural contexts. Development of critical reading and interpretation skills. Exploration of language and linguistics, including grammar, syntax, and phonetics. Introduction to literary theories and their application in analyzing texts. Practice in academic writing, including essay composition and research skills. Development of oral communication and presentation skills. Examination of cultural and historical contexts that influence literature. Integration of technology and digital resources in language and literary studies. Opportunities for creative writing and expression.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Reading and Text Analysis: Provide a variety of reading materials, including literary texts, articles, and authentic sources. Guide students in analyzing and interpreting texts, identifying main ideas, and extracting key information. Facilitate class discussions to promote comprehension and critical thinking. 2. Writing Workshops and Peer Feedback: Conduct writing workshops where students can refine their writing skills and receive feedback from peers and the instructor. Incorporate writing exercises that focus on specific writing techniques and genres. Provide guidance and support in the writing process, including brainstorming, drafting, revising, and editing. 3. Presentations and Public Speaking: Assign oral presentations on various topics to enhance students' public speaking skills. Provide guidelines and practice opportunities for effective delivery, organization, and visual aids. Offer constructive feedback to help students improve their presentation skills. 4. Grammar and Vocabulary Activities: Incorporate interactive grammar and vocabulary activities, such as exercises, games, and quizzes, to reinforce language skills. Provide explicit instruction on grammar rules and strategies for vocabulary acquisition. Encourage students to use new grammar and vocabulary in context.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1		Continuous	All
	Report	1		13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Hello Grammar spot (is, are, am) Possessive Pronouns Everyday English (conversation) Word order Sounds
Week 2	Your world Nationalities Grammar spot (abbreviations, Completing a question, Checking the correct sentence) Complete a conversation
Week 3	All about you Grammar spot (Negatives, abbreviations, and Short answers)

	Writing Personal information (profile) Listening to a conversation Social expressions and jobs
Week 4	Family and friends Objective Pronouns Possession (Possessive pronouns, Possessive S, Has and have) Grammar spot (Checking the correct sentence) Pronunciation
Week 5	The way I live Vocabulary: sports, food, and drinks Grammar spot: (positive, negative, adjectives, and articles: a/an) Listening and speaking Matching countries with nationalities
Week 6	Every day Writing (times) Grammar spot (present simple and its adverbs) Pronunciation (s) Vocabulary and speaking Prepositions
Week 7	Mid-term Exam
Week 8	My favourites/Where I live Grammar spot: Question words, positive, negative, question, and word order. Conversation : using this/ that Vocabulary: completing adjectives, synonyms and antonyms, Everyday English (places and activities). Writing a letter, a postcard and a paragraph. Everyday English: directions

Week 9	Times past Grammar spot: passive voice, past simple, questions, past tense adverbs, and question words. Reading and speaking: past form Vocabulary: Using have, do, go, and time expressions Listening and speaking: sport, leisure, seasons, and months.
Week 10	We had a great time Grammar spot: past tense: regular and irregular forms Pronunciation of /t/, /d/ and /id/ Vocabulary: technical terms
Week 11	I can do that Grammar spot: can, adverbs (fast and well), Regular adverbs, and request and offer Pronunciation of can Vocabulary and speaking: adjectives, and everyday English
Week 12	Please and thank you Speaking : activities and places, Grammar spot: would like, some and any, always, and now and soon Reading and speaking: food names, and everyday English (signs all around) Vocabulary: Technical expressions
Week 13	Second Exam
Week 14	Here and now Vocabulary and listening : colours, opposite verbs, everyday English (sense terms) Grammar spot: present continuous
Week 15	It's time to go Writing: transport

	Grammar spot: going to and present continuous, and Question words Vocabulary revision, Everyday English (social expressions), and Technical abbreviations. Pronunciation of two and three syllables

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Headway Plus Beginner, by John and Liz Soars,2010**	Yes
Recommended Texts		
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to Artificial Intelligence (AI)**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**AIDC111**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	AI		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/10/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The aim of this module is to provide an introduction to Artificial Intelligence (AI) and its various applications. Students will gain a comprehensive understanding of the fundamental concepts, techniques, and algorithms used in AI, as well as the ethical considerations associated with its use. The module will also explore the impact of AI on society, economy, and various industries.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students are expected to: 1. Understand the basic concepts and principles of Artificial Intelligence. 2. Gain knowledge of various AI techniques and algorithms. 3. Develop an understanding of the ethical implications of AI. 4. Analyze the impact of AI on different aspects of society and industry. 5. Apply AI techniques to solve real-world problems.
Indicative Contents المحتويات الإرشادية	Introduction to Artificial Intelligence Definition, brief history, and scope of AI. Different types of AI systems. Problem Solving and Search Algorithms Problem formulation and representation. Uninformed search algorithms (e.g., breadth-first search, depth-first Machine Learning Ethical and Social Implications of

Learning and Teaching Strategies استراتيجيات التعلم والتعليم

Strategies	Conceptual Understanding: Hands-on Practice Code Review and Feedback Problem-Solving Exercises

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
	Midterm Exam	2hr	10% (10)	7	LO #1 - #7

Summative assessment	**Final Exam**	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Historical overview of AI, AI Introduction
Week 2	Programing and AI important
Week 3	AI Types
Week 4	Problem Solving: **Introduction to problem-solving techniques and algorithms**
Week 5	AI Applications Overview: **A survey of AI applications in various domains such as healthcare, finance, and gaming.**
Week 6	**search algorithms like depth-first search and breadth-first search.**
Week 7	Mid-term Exam
Week 8	Machine Learning Basics: **A brief introduction to the fundamentals of machine learning**
Week 9	**Supervised learning**
Week 10	**unsupervised learning**
Week 11	**Expert systems**
Week 12	**Knowledge base**
Week 13	**Rule based approaches**
Week 14	**AI Ethics Awareness: An introduction to ethical considerations in AI, including fairness, bias, and responsible AI development.**
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Book Title: "Artificial Intelligence: A Guide to Intelligent Systems" Author: Michael Negnevitsky	No
Recommended Texts		
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**CCIT060**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	AI		**College**	Type College Code	
Module Leader	Mohammed Salah Ibrahim		**e-mail**	Moh.salah@uoanbar.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Core Mathematical Knowledge: The course aims to provide students with a solid foundation of core mathematical concepts and theories. This includes topics such as algebra, calculus, geometry, discrete mathematics, probability, and statistics. The aim is to ensure that students have a comprehensive understanding of fundamental mathematical principles.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students should be able to: -Understand and use basic mathematical terminology. - Understand the role of formal definitions and proofs and be able to apply them in problem solving. - Understand the basics of propositional and predicate logic. - Understand the basics of elementary set theory. - Understand the basics of mathematical relations and functions. - Understand the basics of graph theory.
Indicative Contents المحتويات الإرشادية	Calculus Linear Algebra Discrete Mathematics Probability and Statistics Differential Equations

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Hands-on Practical Exercises Case Studies and Real-World Examples

	Collaborative Learning Continuous Assessment and Feedback

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Functions: Function Definition, Domain and range of functions, Graphing of function
Week 2	Limits: Definition of limits, Theorems of limits, Type of limits
Week 3	The Definition and Interpretation of the Derivative
Week 4	Methods of proof and Mathematical induction
Week 5	Counting principles Permutations and combinations
Week 6	Pigeonhole principle Inclusion-exclusion principle
Week 7	Midterm
Week 8	Number Theory: ● Prime numbers and factorization ● Modular arithmetic ● GCD and LCM ● Applications in cryptography
Week 9	Probability and Statistics: ● Probability spaces ● Random variables and distributions ● Expectation and variance ● Applications in data analysis and algorithm analysis
Week 10	Linear Algebra for Computer Science:

	• Vectors and matrices
Week 11	• Linear transformations
Week 12	• Eigenvalues and eigenvectors • Applications in Machine Learning
Week 13	Special Topics: • Cryptography • Computation theory and Complexity theory
Week 14	Final Exam
Week 15	Recap for the final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Calculas , Thomas ,1990,5th edition	Yes
Recommended Texts	Howard Anton, Irl Bivens, Stephen Davis, CALCULUS, 10th Edition, John Wiley & Sons, Inc., 2012.	No
Websites		

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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Programming Basics**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	AIDC112				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level		1	**Semester of Delivery**		1
Administering Department		AI	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	• Understand the concepts and terms used to describe languages that support the imperative, functional, and logic programming paradigms. • Solve problems using the functional paradigm
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Develop proficiency in the C++ programming language, including a strong understanding of its syntax, semantics, data types, control structures, functions, and object-oriented programming concepts.
Indicative Contents المحتويات الإرشادية	Introduction to C++ Programming Object-Oriented Programming (OOP) in C++ C++ Standard Library Memory Management in C++ Data Structures and Algorithms in C++ C++ Application Development

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

	Conceptual Understanding: Hands-on Practice Code Review and Feedback Problem-Solving Exercises

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	102	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**225**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Algorithms**
Week 2	**Introduction to programming languages and C++**
Week 3	**Variables**
Week 4	**C++ Libraries**
Week 5	**C++ User Input**
Week 6	**C++ Operators**
Week 7	Mid-term Exam
Week 8	**C++ Strings & C++ Math**
Week 9	**C++ Booleans**
Week 10	**If condition**
Week 11	**Switch condition**
Week 12	**While loop**
Week 13	**Do-while loop**
Week 14	**For loop**
Week 15	**C++ Break and Continue**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	**C++ Libraries**
Week 2	**C++ User Input**
Week 3	**C++ Operators**
Week 4	**If condition**
Week 5	**Switch condition**
Week 6	**While loop**
Week 7	**Do-while loop**
Week 8	**For loop**
Week 9	**C++ Break and Continue**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	The C++ Programming Language (4th Edition) by by Bjarne Stroustrup	No
Recommended Texts		
Websites	https://www.learncpp.com/ https://www.w3schools.com/CPP/default.asp	

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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Data Science**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**AIDC125**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Associate Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Ahmed J. Aljaaf		**e-mail**	a.j.aljaaf@uoanbar.edu.iq	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		21/10/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC111	**Semester**	1
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 has been designed to help learners to understand the core concepts and applications of Data Science and Familiarize them with essential data manipulation and visualization techniques. Various data sources and collection methods will be explored in this course to enable learners develop skills in data cleaning and preprocessing. It is anticipated that learners, at the end of this course, will be able to effectively communicate data insights and build data narratives by creating reports and visualizations for data communication.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of this comprehensive Data Science course, learners will have achieved a diverse set of learning outcomes. They will have a solid understanding of the core principles of data science, enabling them to proficiently collect, clean, and explore data for analysis. Learners will develop strong data visualization skills, including advanced techniques, and will be able to apply statistical and probability concepts to perform robust data analysis. Furthermore, by the end of this course, learners will have the knowledge and skills needed to communicate their findings effectively and present data insights in a compelling manner. The capstone project will serve as a practical application of their skills, allowing them to tackle real-world data science challenges and showcase their problem-solving abilities.
Indicative Contents المحتويات الإرشادية	● Definition and scope of Data Science. ● Data preprocessing: encoding, scaling, and normalization. ● Data cleaning techniques: handling missing data, data formatting. ● Descriptive statistics: mean, median, variance, skewness. ● Exploratory data analysis techniques: box plots, scatter plots, histograms. ● Correlation Analysis, Analysis of variance, and Non-parametric statistical tests. ● Time series data exploration. ● Data extraction and manipulation using SQL. ● Data wrangling techniques: filtering, merging, pivoting ● Ethical considerations in data collection and analysis. ● Building data narratives and reports. ● Applying data science skills to a real-world project.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم

Strategies	Hands-on Practical Exercises Case Studies and Real-World Examples Collaborative Learning Continuous Assessment and Feedback

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	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 Data Science
Week 2	Data and information
Week 3	Data analytics Lifecycle
Week 4	Data Collection and Cleaning
Week 5	Exploratory Data Analysis (EDA)
Week 6	Data Visualization
Week 7	Statistical Analysis
Week 8	Time Series Analysis
Week 9	Data Wrangling
Week 10	Feature Engineering
Week 11	Data Ethics and Privacy
Week 12	Data Storytelling and Communication
Week 13	Capstone Project
Week 14	SQL and Databases for Data Science
Week 15	Project Presentations and Wrap-up

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Data Collection and Cleaning

Week 2	Exploratory Data Analysis (EDA)
Week 3	Data Visualization
Week 4	Statistical Analysis
Week 5	Time Series Analysis
Week 6	Data Wrangling
Week 7	Feature Engineering
Week 8	Data Ethics and Privacy
Week 9	Data Storytelling and Communication
Week 10	Capstone Project

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Introducing Data Science, Davy Cielen, Anro DB Meysman, Mohamed Ali	No
Recommended Texts	Data Science Job: How to Become a Data Scientist, Przemek Chojecki	No
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Discrete Mathematics			**Module Delivery**	
Module Type	**B**			☒**Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	CCIT061				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		1	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CCIT060	**Semester**	1

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- To Describe the aim of study discrete mathematics 2- To Understand what difference between ordinary math and discrete math. 3- To Understand what the relation between computer science and math 4- To Learn the operation between the difference objects of math. 5- To Apply the relation between this objects
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	. A- Knowledge and Understanding 1. Understand the concept of ordinary and partial 2. Understand the set theory 3. Understand the logic math 4. Understand the relation of two sets 5. Understand the graph theory
Indicative Contents المحتويات الإرشادية	• **Sets and Graphs** Sets and subsets: definitions, examples, Set operations, basic identities, power of a set, Cartesian product of sets, relations on sets, Basic graph terminology. • **Recurrence relations (Difference Equations)** Definition of a recurrence relation (difference equations), Homogeneous and inhomogeneous difference equations, Nonlinear difference equations: $x_{n+1} = g(x_n)$, Fixed points, linearisation, stability of fixed points. Applications: the Newton and Secant Methods to solve non-linear equations $f(x) = 0$, Programming: Short introduction to Matlab, Numerical algorithms for difference equations: Newton′s method, Fibonacci sequences, Recursion.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	. - By solving many exercises - Daily and weekly quizzes. - Guiding the student to some electronic websites.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7

	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Abstract of discrete mathematics
Week 2	Set theory
Week 3	Solve some example
Week 4	The Logic
Week 5	Solve some example
Week 6	The Functions
Week 7	Mid-term Exam
Week 8	The Relation
Week 9	Some examples
Week 10	Graph theory
Week 11	Some example
Week 12	The Tree
Week 13	Solve example
Week 14	Solve example
Week 15	General Review

Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
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	C – Good	جيد	70 - 79	Sound work with notable errors
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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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Logic Design**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**AIDC124**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- The student should understand number systems and codes and conversion between them. 2- The student should understand the Boolean expression and how to apply it. 3- The student should recognize among different logic gates and how to use them. 4- The student should understand how to design a logic circuit. 5- The student should understand using K-map for simplification.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Demonstrate a solid understanding of digital logic principles, including Boolean algebra, logic gates, truth tables, and the concept of binary representation.
Indicative Contents المحتويات الإرشادية	Introduction to Digital Logic Combinational Logic Design Arithmetic circuits Sequential Logic Design Circuit Testing and Verification

Learning and Teaching Strategies استراتيجيات التعلم والتعليم

Strategies	Conceptual Understanding Problem-Solving Approach Hands-on Laboratory Experience Design Projects Simulation and Modeling Problem-Based Learning

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
	Midterm Exam	2hr	10% (10)	7	LO #1 - #7

Summative assessment	**Final Exam**	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction: Digital System
Week 2	Number Systems: Octal and Hexadecimal Numbers
Week 3	Number base conversion
Week 4	● Theories of Boolean Algebra ● Digital Logic gates
Week 5	Boolean Expression and Truth table
Week 6	● Sum of Product Simplification ● Product Of Sum Simplification
Week 7	● Exclusive OR ● NAND gates ● NOR gates
Week 8	Medterm
Week 9	● Two- and Three-Variables Karnaugh Maps. ● Four Variables Karnaugh Maps.
Week 10	Quine-McCluskey method
Week 11	Combinational Logic: Adder, Subtractor Comparators, Decoders and Encoders
Week 12	Multiplexers (Data Selectors). and DE multiplexers
Week 13	Sequential Logic and Latches
Week 14	Applied Logic

Week 15	Memory and Programmable logic

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Codes and conversion among them
Week 2	Codes and conversion among them1
Week 3	Boolean expression
Week 4	Logic gates
Week 5	Circuit Design
Week 6	Second month exam
Week 7	NAND gates & NOR gates
Week 8	Sum of product form
Week 9	Product Of sum form
Week 10	K-map

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	An Introduction to Logic Technology by Luois Nashlsky	Yes
Recommended Texts	Fundamentals of logic design by J. Roth	No
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Structured Programming**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**AIDC123**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level		1	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC112	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Learn how to use the Advanced Tools helps programmers write fast, portable programs The main principles of programming and the development of programming languages Learn the principles of Structure programming
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- Learn the algorithms - Learn the Flowchart - Learn C++ Programming
Indicative Contents المحتويات الإرشادية	Introductions to C++ Programming; Introductions to essential computer graphics concepts and theories; Object Oriented programming for 2D graphics; Algorithms design for 2D graphics; Graphic interface creations and implementations.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- Daily and weekly quizzes. - Class room activities. - Guiding the student to some electronic websites.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	102	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**225**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	The Function
Week 2	Passing Parameters. Passing by Value. Passing by Reference.
Week 3	The Pointers
Week 4	Arrays. Array of One Dimension: Declaration of Arrays.
Week 5	Initializing Array Elements
Week 6	Accessing Array Elements
Week 7	Mid-term Exam
Week 8	Read / Write / Process Array Elements.
Week 9	Array of Two Dimension: Declaration of 2D-Arrays
Week 10	Read / Write / Process Array Elements.
Week 11	Member Function of String stdlib Library.
Week 12	Structures. The Three Ways for Declare the Structure.
Week 13	Array of Structures.
Week 14	The Files in c++
Week 15	
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	The Function
Week 2	Passing Parameters. Passing by Value. Passing by Reference.

Week 3	The Pointers
Week 4	Arrays. Array of One Dimension: Declaration of Arrays.
Week 5	Initializing Array Elements
Week 6	Accessing Array Elements
Week 7	Array of Two Dimension: Declaration of 2D-Arrays
Week 8	Read / Write / Process Array Elements.
Week 9	Array of Structures.
Week 10	The Files in c++

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Mastering C++, shomme's series	yes
Recommended Texts		
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**اللغة العربية**			**Module Delivery**	
Module Type	**S**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOA001				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		2	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	

Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- تعليم الطلبة عل أساسيات اللغة العربية وقواعدها - تعليم الطلبة عل كيفية اإلعراب -
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- أن يتعرف الطالب على قواعد اللغة العربية - أن يعرف الطالب كيفية بناء الجمل واستخراجها للعنوان المطلوب - القدرة على استعمال العبارات الصحيحة - القدرة على مشاركة اآلخرين في الحوار الصحيح
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- مشاركة بالتحضير في قاعة الدرس - طريقة األلسئلة واألجوبة في قاعة الدرس - ادارة المحاضرة عل نحو تطبيقي مرتبط بواقع الحياة اليومية - تكليف الطالب ببعض األلنشطة والواجبات

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.				
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	العدد تذكيره وتأنيثه
Week 2	الاعداد المفردةً والمركبة
Week 3	ألفاظ العقود والأعداد) مئة ، ألف ، مليون(
Week 4	تعريف العدد وتنكيره
Week 5	ما يصاغ من العدد على وزن فاعل
Week 6	كتابة الهمزة المتوسطة والمتطرفة
Week 7	**امتحان**
Week 8	كتابة الالف اللينة
Week 9	كتابة التاء المربوطة والمبسوطة
Week 10	كتابة الضاد والظاء
Week 11	اللامات وأنواعها
Week 12	الهاءات وأنواعها
Week 13	النونات وأنواعها
Week 14	استعمالات)ما ، من(، والفرق بين (أما ، إما(
Week 15	استعمالات (أن ، إن(
Week 16	**الامتحان النهائي**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- قواعدًاللغةًالعربيةً، يوسفً الصيداويً	لا

Recommended Texts		
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**جرائم حزب البعث**			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TU-AI12**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		2
Administering Department		AI	**College**	College of Science	
Module Leader	Name		**e-mail**	E-mail	

Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1معرفة الاشكاليات التي تثار حول نطاق تطبيق النصوص الديمقراطية . 2. اشراك الطلبة بوقائع مستمدة من سوح المحاكم الشرعية العراقية. 3. تعزيز الروح الوطنية للطلبة بما يخدم المسيرة العلمية الديمقراطية. -4تنمية روح المواطنة من خلال القيم التفاعلية (الاجتماعية والعلمية) . 5- استخدام وسائل التواصل الاجتماعية الحديثة بما يخدم المسيرة العلمية.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- أن يتعرف الطالب على مفهوم انتهاكات الحقوق والحريات. 2- أن يتعرف الطالب على الانظمة السياسية في العراق. 3- ان يتعرف الطالب على انتهاكات النظام البعثي للحقوق والحريات العامة. 4- القدرة على مشاركة الآخرين في فهم الفصل بين السلطات.
Indicative Contents المحتويات الإرشادية	انتهاكات الحقوق والحريات. الانظمة السياسية في العراق.

انتهاكات النظام البعثي للحقوق والحريات العامة. فهم الفصل بين السلطات.	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- المشاركة بالتحضير في قاعة الدرس 2- طريقة الأسئلة والأجوبة في قاعة الدرس 3- الواجبات 4- التقارير

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية				
	Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1		Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	انتهاكات الحقوق والحريات
Week 2	الانظمة السياسية في العراق
Week 3	النظام الملكي
Week 4	النظام الجمهوري
Week 5	انتهاكات النظام البعثي للحقوق والحريات العامة
Week 6	انتهاكات الحقوق الفكرية
Week 7	انتهاك الحقوق العامة
Week 8	انتهاك الحق في التعددية الحزبية
Week 9	الانتهاكات التي تمس حقوق الاجتماعية والسياسية والثقافية
Week 10	اسقاط الجنسية
Week 11	انتهاك القانون الدولي
Week 12	الحصار الدولي على العراق
Week 13	الاعتقالات العشوائية / الاعتقالات للسكان المدنيين / العسكريين / العلماء

Week 14	حصر السلطات بيد النظام البعثي
Week 15	أمتحان نهاية الفصل

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....) وزارة التعليم العالي والبحث العلمي- دائرة الدراسات والتخطيط والمتابعة.	yes
Recommended Texts	الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....) وزارة التعليم العالي والبحث العلمي- دائرة الدراسات والتخطيط والمتابعة.	
Websites	المراجع الإلكترونية ، مواقع الانترنيت.	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	AI Applications			**Module Delivery**	
Module Type	C			☒**Theory** ☐**Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	AIDC215				
ECTS Credits	2				
SWL (hr/sem)	75				
Module Level		2	**Semester of Delivery**		3
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	م.د. محمد صلاح ابراهيم		**e-mail**	Moh.salah@uoanbar.edu.iq	

Module Leader's Acad. Title	Teacher	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	09/20/2024	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC111	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	• Understand Core AI Concepts and Applications • Explore AI's Role Across Various Industries • Hands-on Application of AI Techniques • Address Ethical Considerations and Challenges in AI • Investigate AI's Future and Impact on Society • Understand AI Scalability and Deployment
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Students will be able to explain core concepts in artificial intelligence, including the differences between Narrow AI and General AI. • Students will understand the historical development of AI and current trends shaping its future. • Students will be able to identify and describe AI applications in various fields, including healthcare, finance, marketing, robotics, smart cities, gaming, and entertainment.

	• Students will demonstrate an understanding of the specific AI tools, algorithms, and techniques used in these applications. • Students will be able to build basic AI models using techniques such as deep learning, reinforcement learning, natural language processing, and time-series analysis. • Students will understand key ethical concerns related to AI, including bias, fairness, and privacy issues. • Students will be able to deploy AI models using cloud platforms and understand the challenges involved in scaling AI solutions.
Indicative Contents المحتويات الإرشادية	• Overview of AI concepts and terminology (Artificial Intelligence, Machine Learning, Deep Learning) • Types of AI: Narrow AI vs. General AI • Key trends in AI (automation, AI ethics, autonomous systems) • Case studies: Google Search, Amazon recommendation engine, Tesla's autonomous driving • In healthcare, AI applications in medical imaging (e.g., tumor detection, MRI analysis). Predictive models for disease prevention and diagnosis. • AI in Finance: Fraud detection, algorithmic trading, credit scoring. Techniques: Machine learning for anomaly detection, time-series forecasting, reinforcement learning for trading algorithms. • AI in Marketing and Customer Experience: AI in recommendation systems (e.g., Netflix, Amazon). Customer sentiment analysis using NLP. • AI in Marketing and Customer Experience: Recommendation systems in e-commerce (e.g., Amazon, Netflix) using collaborative filtering. • Natural Language Processing (NLP) and AI: AI-driven language models (e.g., GPT, BERT) for text generation, translation, and summarization. • AI in Gaming and Entertainment: Game development and AI-driven interactive storytelling (e.g., NPC behavior, dynamic environments).

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Students will engage with foundational AI concepts through lectures and case studies that highlight real-world applications across various industries. Interactive discussions will encourage critical thinking, particularly around ethical considerations and challenges in. The capstone project will provide independent learning, teamwork, and problem-solving by having students develop an AI solution to a real-world problem,

	presenting their findings at the end of the course. This comprehensive approach ensures both knowledge acquisition and skill development in AI.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	33	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	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 AI Applications**
Week 2	**AI in Healthcare**
Week 3	**AI in Finance**
Week 4	**AI in Marketing and Customer Experience**
Week 5	**AI in Robotics**
Week 6	**AI in Natural Language Processing (NLP) 1**
Week 7	**AI in Natural Language Processing (NLP) 2**
Week 8	**Mid-term Exam**
Week 9	**AI in Smart Cities and IoT**
Week 10	**AI in Gaming and Entertainment**
Week 11	**AI for Social Good**
Week 12	**AI Ethics, Bias, and Privacy**
Week 13	**AI Deployment and Scalability**
Week 14	**Capstone Project Presentation**
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	

Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Applied Artificial Intelligence: A Handbook for Business Leaders" by Mariya Yao, Adelyn Zhou, and Marlene Jia	Yes
Recommended Texts		
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Basics of Object Oriented Programming**	**Module Delivery**
Module Type	**C**	☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical**
Module Code	AIDC213	
ECTS Credits	**8**	

SWL (hr/sem)	**200**			☐**Seminar**	
Module Level		2	**Semester of Delivery**		3
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Hussam Jasim Mohammed		**e-mail**	hussamjasim@uoanbar.edu.iq	
Module Leader's Acad. Title		Asst. Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC123	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Introduce the principles of object-oriented programming in a higher-level programming language in c++. 2. Analyze a problem statement to develop a mental model of objects necessary to create a software architecture 3. Utilize object-oriented programming to frame software architectures, with care towards separation of concerns and abstraction 4. Gain skills in designing, and programming software for reuse of code. 5. Establish development methods in object-oriented programming to qualify students for teaching the language in other settings
Module Learning Outcomes	● Explain the motivation for and development of object-oriented programming languages.

مخرجات التعلم للمادة الدراسية	• Produce a set of use cases given a problem statement. • Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem. • Describe the essential features of an object-oriented programming language. • Produce and/or debug code fragments that illustrate principles of object-oriented software development. • Describe the principles for testing object-oriented software and derive sets of test data given a specification.
Indicative Contents المحتويات الإرشادية	✓ Structured programming ✓ Procedural programming ✓ Abstract data types (ADTs) ✓ Type of variable and range of applicable operations ✓ Use of classes in object-oriented programming ✓ How coupling and cohesion are implemented in OOP ✓ Abstraction and Encapsulation ✓ Data hiding/information hiding ✓ Classes and objects instances

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	There are different teaching and learning activities including lectures and laboratories. The concepts, process, and applications of data science will be discussed in lectures. Students will also learn computer programming knowledge and the skills of manipulating, processing, retrieving, storing, and plotting data. Students will develop small programs and learn different in laboratories.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Overview of C++ Programming
Week 2	Introduction to Object Oriented Programming
Week 3	Comparison between Structural programming and OOP.

Week 4	Class in OOP
Week 5	Class Object
Week 6	Class constructor
Week 7	Local variable and class variable
Week 8	Static and none static variable.
Week 9	Static and none static method.
Week 10	Encapsulation
Week 11	Inheritance (Super class and sub class)
Week 12	Mid exam
Week 13	Array Objects & Type of inheritance
Week 14	OOP Project
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: develop a program to implement 1 dimension array
Week 2	Lab 2: develop a program to perform matrix operation using multi-dimensions array
Week 3	Lab 3: develop program that implement a class and use it with objects
Week 4	Lab 4: develop program that implement a class and create array of objects
Week 5	Lab 5: write program for single inherence
Week 6	Lab 6: write program for hybrid inherence
Week 7	Lab 7: write code for overload function

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Object-oriented programming with C++ by E.Balagurusamy, 2nd Edition, TMH.	Yes
Recommended Texts	1. Object Oriented Design by Rumbaugh (Pearson publication) 2. Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.	No
Websites	https://www.coursera.org	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Computation Theory**	**Module Delivery**
Module Type	**C**	☒**Theory** ☐**Lecture** ☐**Lab**
Module Code	AIDC212	

ECTS Credits	**5**			☒**Tutorial** ☐**Practical** ☐**Seminar**	
SWL (hr/sem)	**125**				
Module Level		2	**Semester of Delivery**		3
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	محمد ابراهيم		**e-mail**	E-mail	
Module Leader's Acad. Title		Assistant Teacher	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Finite automata are useful models for many important kinds of hardware and software. Here are the most important kinds: Software for designing and checking the behavior of digital circuits; The "lexical analyzer" of a typical complier, that is, the compiler component that breaks the input text into logical units, such as identifiers, keywords, and punctuation; Software for scanning large bodies of text, such as collections of Web pages, to find occurrences of words, phrases, or other patterns; Software for verifying systems of all types that have a finite number of distinct states, such as communication protocols or protocols for secure exchange of information.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Knowledge and understanding - Acquire a full understanding and mentality of Automata Theory as the basis of all computer science languages design - Have a clear understanding of the Automata theory concepts such as RE's, DFA's, NFA's, Stack's, Turing machines, and Grammars • Cognitive skills (thinking and analysis). - Be able to design FAs, NFAs, Grammars, languages modelling, small compilers basics - Be able to design sample automata • Communication skills (personal and academic). - Be able to minimize FA's and Grammars of Context Free Languages • Practical and subject specific skills (Transferable Skills).
Indicative Contents المحتويات الإرشادية	● Training in the applied use of key coding languages for creative computing ● Training in key frameworks for creative computing ● Introduction to online collaboration for creative computing

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Class discussions with examples.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Basic concepts and definitions; Set operations; partition of a set
Week 2	Central concepts of Automata Theory.
Week 3	Regular Expressions; Operations on Regular expressions
Week 4	Finite Automata and Regular Expressions.
Week 5	Deterministic Finite Automata (DFA) and Non-Deterministic Finite Automata (NDFA)
Week 6	Equivalence of Deterministic and Non-Deterministic Finite Automata.

Week 7	Finite Automata with Epsilon-Transition. Equivalence between DFA, NFA, NFA-Λ
Week 8	Conversion from FA and regular expressions.
Week 9	Mealy and Moore Machines
Week 10	Conversion between mealy and Moore machines
Week 11	Reglual grammar and Context-Free Grammars
Week 12	Parse Trees; Ambiguity in Grammars and Languages
Week 13	Standard Forms; Chomsky Normal Forms;
Week 14	Chomsky normal form
Week 15	Greibach normal Forms.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to Computer Theory, Daniel I. A. Cohen, Prentice-Hall, Second Edition, 1997.	Yes
Recommended Texts	JohnE.Hopcroft, RajeevMotwani, JeffreyD.Ullman: IntroductiontoAutomataTheory,Languages, and Computation; Addison Wesley,2000.	No
Websites	https://www.coursera.org/courses?query=theory%20of%20computation	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Python Programming Language**	**Module Delivery**
Module Type	**C**	☒**Theory** ☐**Lecture** ☒**Lab**
Module Code	AIDC214	

ECTS Credits	**6**			☒**Tutorial** ☐**Practical** ☐**Seminar**	
SWL (hr/sem)	**150**				
Module Level		2	**Semester of Delivery**		3
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Hussam Jasim Mohammed		**e-mail**	hussamjasim@uoanbar.edu.iq	
Module Leader's Acad. Title		Asst. Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC123	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Introduce the principles of a higher-level programming language in python. 2. Analyze a problem statement to develop a mental model of objects necessary to create a software architecture 3. Utilize object-oriented programming to frame software architectures, with care towards separation of concerns and abstraction 4. Gain skills in designing, and programming software for reuse of code.
Module Learning Outcomes	• Explain the motivation for and development of python programming language. • Produce a set of use cases given a problem statement. • Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem.

مخرجات التعلم للمادة الدراسية	• Describe the essential features of an object-oriented programming language. • Produce and/or debug code fragments that illustrate principles of object-oriented software development. • Describe the principles for testing object-oriented software and derive sets of test data given a specification.
Indicative Contents المحتويات الإرشادية	✓ Structured programming ✓ Procedural programming ✓ Abstract data types (ADTs) ✓ Type of variable and range of applicable operations ✓ Use of classes in object-oriented programming

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	There are different teaching and learning activities including lectures and laboratories. The concepts, process, and applications of data science will be discussed in lectures. Students will also learn computer programming knowledge and the skills of manipulating, processing, retrieving, storing, and plotting data. Students will develop small programs and learn different in laboratories.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Installation of Python and an Integrated Development Environment (IDE)
Week 2	Python Fundamental: Introduction, Variables, Comments, Python Data Types
Week 3	Python Fundamental: Operators, Python Conditions and If statements, Python Loops,
Week 4	Python Fundamental: Functions: defining functions, parameters, and return values
Week 5	Lists, tuples, sets, and dictionaries
Week 6	Introduction to Class Fundamentals
Week 7	Python - Object Oriented Programming (objects, inheritance, polymorphism)
Week 8	Mid-term Exam
Week 9	Reading and writing files in Python

Week 10	Exception handling and error management
Week 11	Introduction to standard input/output and libraries
Week 12	Exploring key Python libraries (e.g., NumPy, pandas, matplotlib)
Week 13	Installing and using external libraries
Week 14	Introduction to databases (SQLite, MySQL, or PostgreSQL) Connecting Python to databases
Week 15	python Project

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Installation of Python and an Integrated Development Environment (IDE)
Week 2	Python Fundamental: Introduction, Variables, Comments, Python Data Types
Week 3	Python Fundamental: Operators, Python Conditions and If statements, Python Loops,
Week 4	Python Fundamental: Functions: defining functions, parameters, and return values
Week 5	Lists, tuples, sets, and dictionaries
Week 6	Reading and writing files in Python
Week 7	Exception handling and error management

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	"Python Cookbook" by David Beazley and Brian K. Jones:	No
Recommended Texts		No

Websites	https://www.coursera.org

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Knowledge Representation**	**Module Delivery**
Module Type	**C**	☒ **Theory** ☐ **Lecture** ☐ **Lab**
Module Code	**AIDC210**	

ECTS Credits	**6**			☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
SWL (hr/sem)	**150**				
Module Level		2	**Semester of Delivery**		3
Administering Department		AI	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC125	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	● will understand the foundations of KRR and the tradeoff between representation and reasoning ● will understand which knowledge-based techniques are appropriate for which tasks; ● can apply KRR systems to their research and challenging problems;
Module Learning Outcomes	● Students satisfying the prerequisites are expected to understand the fundamental principles of logic-based Knowledge Representation; ● be able to model simple application domains in a logic-based

مخرجات التعلم للمادة الدراسية	language; ● understand the notion of a reasoning service; ● master the fundamentals of the reasoning algorithms underlying current systems; ● understand the fundamental trade-off between representation power and computational properties of a logic-based representation language; ● be conversant with several widely used knowledge representation languages; and ● understand how the theoretical material covered in the course is currently being applied in practice.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	● Lectures delivered by the teacher; ● guided self-studies on specific, individual topics; ● seminars delivered by the students on these specific topics; ● practical group exercises. Hands-on Practical Exercises ● Case Studies and Real-World Examples ● Collaborative Learning ● Continuous Assessment and Feedback

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem)	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4

الحمل الدراسي غير المنتظم للطالب خلال الفصل			
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	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 Knowledge Representation - Overview of knowledge representation and its importance in AI
Week 2	- Different types of knowledge representation methods
Week 3	Logical Representations - Propositional logic

	- First-order logic
Week 4	- Inference and reasoning with logical representations
Week 5	Semantic Networks - Basic concepts of semantic networks - Types of semantic networks (taxonomic, part-whole relations, etc.) - Inference in semantic networks
Week 6	Frame-Based Representation - Basic concepts of frames as a knowledge representation tool - Frame attributes, default values, and slots - Inheritance hierarchies and reasoning with frames
Week 7	Ontologies - Definition and components of ontologies - Ontology languages like OWL - Developing and using ontologies for knowledge sharing
Week 8	Midterm Term
Week 9	Rules and Production Systems - Basic concepts of rules and rule-based systems
Week 10	- Forward chaining and backward chaining inference - Conflict resolution strategies
Week 11	Uncertainty in Knowledge Representation - Representing uncertainty using Bayesian networks
Week 12	- Reasoning with uncertain knowledge - Applications involving uncertainty
Week 13	Knowledge Graphs - Structure and construction of knowledge graphs - Querying knowledge graphs
Week 14	- Knowledge graph applications
Week 15	Projects Presentation

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Van Harmelen, F., Lifschitz, V., Porter, B. (ed.). Handbook of knowledge representation. – Elsevier, 2008. – Vol. 1. – 1034 pp.	NO
Recommended Texts	Boolos, G. S., Burgess, J. P., Jeffrey, R. C. Computability and logic. – Cambridge university press, 2002. – 364 pp. Nipkow, T., Grumberg, O., Hauptmann, B. (ed.). Software Safety and Security: Tools for Analysis and Verification. – IOS Press, 2012. – 400 pp.	No
Websites		

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
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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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	Numerical Analysis	**Module Delivery**
Module Type	**B**	**☒Theory**

Module Code	CCIT062			☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		2	**Semester of Delivery**		3
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	تيسير احمد ياسين		**e-mail**	taisir.ahmed@uoanbar.edu.iq	
Module Leader's Acad. Title		Assistant Teacher	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CCIT061	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. Appreciate the value of mathematical reasoning and analysis in applications 2. Realize the importance of mathematical principles and skills in solving some types of problems 3. Develop critical and analytical thinking, accuracy, neatness when using mathematics 4. Realize that a large number of problems cannot be solved by prepared "theoretical" formulas; instead, the solution is arrived at by a succession of approximations until the desired accuracy is obtained

	5. Appreciate the usefulness of the computer and see how its use removed the drudgery involved in computations and how by use of programming techniques sequential processes are placed in the correct order 6. Exhibit values like: o cooperation through group study; o honesty by claiming credit only for the work he has done; o zeal and seriousness of intent to learn by participating actively in class discussion, doing his homework regularly and consulting his mentor; o patience, perseverance and diligence by solving assigned exercises completely including the difficult ones; o faith by doing what is right and giving his best in performing any assigned task; o show concern for the community through sharing of know-how and resources during group discussion; o self-reliance by being able to solve problems independently.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Knowledge and Understanding: During the lecture the student understands the nature and operations of Numerical Analysis, demonstrates familiarity with theories and concepts used in Numerical Analysis, and identifies the steps required to carry out a piece of research on a topic in Numerical Analysis. 2. Intellectual Skills: By the end of the course the student is expected to recognize and apply appropriate theories, principles and concepts relevant to Numerical Analysis, critically assess and evaluate the literature within the field of Numerical Analysis, analyze and interpret information from a variety of sources relevant to Numerical Analysis. 3. Practical Skills: By the end of the course student will have the ability to compare the computational methods for advantages and drawbacks, choose the suitable computational method among several existing methods, implement the computational methods using any of existing programming languages, testing such methods and compare between them, identify the suitable computational technique for a specific type of problems, and develop the computational method that is suitable for the underlying problem. 4. Transferable Skills: Within the lectures the student is able to transfer ideas and experience, work effectively as a part of a group and independently.
Indicative Contents المحتويات الإرشادية	**Introduction to Mathematical Modelling and Computational Methods –** Importance of computational modelling in engineering. Data representation and errors. Applications of commercial software packages such as MATLAB. Functions and plotting using MATLAB. **Computer Solution of Non-linear Equations -** Bracketing Methods. Bisection Method. Open Methods. Newton-Raphson Method. Secant Method. Convergence of

	methods. Determination of multiple roots. Engineering applications. Simultaneous Linear Equations - Solving simultaneous linear equations by Matrix Inversion. Cramer's Rule. Gauss Elimination. Gauss-Jordan Elimination. LU decomposition method. Engineering applications and choice of methods. Eigenvalues Problems. **Optimization -** Unconstrained optimization. Multi-dimensional optimization. Unconstrained optimization. Curve Fitting and Data Analysis - Interpolation using splines. Linear Least-Squares Regression. Nonlinear Regression. Introduction to Machine Learning Algorithms. **Numerical Differentiation and Integration -** Taylor's series expansion. Finite differences for the first derivative and the second derivative. High-accuracy differentiation formulas. Trapezoidal rule. Simpson's rule. High-order Newton-Cotes formulas. Applications of numerical differentiation and integration in heat transfer, solid mechanics and fluid flow problems.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Numerical analysis is the story of how functions, derivatives, integrals, and differential equations are handled as strings of numbers in the computer. At the heart of numerical analysis is an understanding of the speed of convergence of Taylor, Fourier, and other series expansions. Most scientists and engineers are sooner or later faced with computing tasks that require some knowledge of numerical analysis.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem)	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3

الحمل الدراسي غير المنتظم للطالب خلال الفصل			
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Direct methods for solving linear system of equation
Week 2	Simple Gaussian elimination method, gauss elimination method with partial pivoting,
Week 3	determinant evaluation, gauss Jordan method,
Week 4	L U decompositions Doolittle's LU decomposition, Doolittle's method with row interchange
Week 5	Finding Matrix Inverse

Week 6	Iterative methods for solving linear systems of equations
Week 7	Jacobin iteration, gauss – seidel method,
Week 8	Successive over relaxation method (sort method)
Week 9	Mid-term Exam
Week 10	Newton-Raphson Method
Week 11	Runge-kutta Method
Week 12	Interpolation and the Lagrange Polynomial, Data Approximation and Neville's Method
Week 13	Numerical Analysis Methods for Differential Equation
Week 14	Numerical Analysis Methods for Integral Equation
Week 15	Final Exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Thévenin's / Norton's Theorem and Kirchhoff's Laws
Week 3	Lab 3: First-Order Transient Responses
Week 4	Lab 4: Second-Order Transient Responses
Week 5	Lab 5: Frequency Response of RC Circuits
Week 6	Lab 6: Frequency Response of RLC Circuits
Week 7	Lab 7: Filters

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Richard L. Burden and etc." Numerical Analysis ", 9th edition, 2014	Yes
Recommended Texts	Richard L. Burden and etc." Numerical Analysis ", 9th edition, 2014	Yes
Websites	https://www.coursera.org/courses?query=numerical%20analysis	

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Advanced Object Oriented Programming**	**Module Delivery**
Module Type	**C**	☒Theory ☐Lecture ☒Lab
Module Code	**AIDC222**	

ECTS Credits	**8**			☒**Tutorial** ☐**Practical** ☐**Seminar**	
SWL (hr/sem)	**200**				
Module Level		2	**Semester of Delivery**		4
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Dhafar Hamed Abd		**e-mail**	Dhafar.hamed@uoanbar.edu.iq	
Module Leader's Acad. Title		Asst. Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC213	**Semester**	3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Introduce the principles of object-oriented programming in a higher-level programming language in c++. 2. Analyze a problem statement to develop a mental model of objects necessary to create a software architecture 3. Utilize object-oriented programming to frame software architectures, with care towards separation of concerns and abstraction 4. Gain skills in designing, and programming software for reuse of code. 5. Establish development methods in object-oriented programming to qualify students for teaching the language in other settings

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Explain the motivation for and development of object-oriented programming languages. • Produce a set of use cases given a problem statement. • Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem. • Describe the essential features of an object-oriented programming language. • Produce and/or debug code fragments that illustrate principles of object-oriented software development. • Describe the principles for testing object-oriented software and derive sets of test data given a specification.
Indicative Contents المحتويات الإرشادية	✓ Structured programming ✓ Procedural programming ✓ Abstract data types (ADTs) ✓ Type of variable and range of applicable operations ✓ Use of classes in object-oriented programming ✓ How coupling and cohesion are implemented in OOP ✓ Abstraction and Encapsulation ✓ Data hiding/information hiding ✓ Classes and objects instances

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	There are different teaching and learning activities including lectures and laboratories. The concepts, process, and applications of data science will be discussed in lectures. Students will also learn computer programming knowledge and the skills of manipulating, processing, retrieving, storing, and plotting data. Students will develop small programs and learn different in laboratories.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Fried function
Week 2	Polymorphism Based on Overloaded Methods

Week 3	Polymorphism, Type Conversion, Casting, Etc.
Week 4	Abstract class.
Week 5	Exception Handling
Week 6	Event Handling
Week 7	Using (try, catch, throw and final) with Exception
Week 8	Interface
Week 9	Inner class
Week 10	Static Members
Week 11	Encapsulation
Week 12	Mid exam
Week 13	Purpose of Framework Interfaces
Week 14	File
Week 15	OOP Project
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: write a program to implement inline function
Week 2	Lab 2: write a program to implement all types of constructors
Week 3	Lab 3: write a program to implement multiple inherence
Week 4	Lab 4: write program to demonstrate pointer to object
Week 5	Lab 5: write a program to demonstrate pointer to derived class
Week 6	Lab 6: write program to demonstrate function overloading

Week 7	Lab 7: write program to read and write data to and from a file

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Object-oriented programming with C++ by E.Balagurusamy, 2nd Edition, TMH.	Yes
Recommended Texts	1. Object Oriented Design by Rumbaugh (Pearson publication) 2. Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.	No
Websites	https://www.coursera.org	

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
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Algorithms and Data Structures**	**Module Delivery**
Module Type	**C**	**☒Theory**

Module Code	**AIDC223**			☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Mohammed Salah Ibrahim		**e-mail**	moh.salah@uoanbar.edu.iq	
Module Leader's Acad. Title	Teacher		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC123	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- How to build your Algorithm (Programs) efficiently. 2- How to measure your algorithm complexity. 3- What data structure is appropriate for your algorithm. 4- Learning different data structures. 5- Understand why this data structure is better than the other one. 6- Learning how to choose the best data structure for your algorithm. 7- learn how to deal with your problem, building its algorithm and fitting the best data structures to it.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	● How to measure the performance of your algorithm. ● What are data structures and how to use them ● Explain and utilize linked lists, stacks, queues and trees. ● Apply design guidelines to evaluate alternative software designs. ● Basic ability to analyze algorithms and to determine algorithm correctness and time efficiency class. ● Master a variety of advanced abstract data type (ADT) and data structures and their implementations. ● Ability to apply and implement learned algorithm design techniques and data structures to solve problems.
Indicative Contents المحتويات الإرشادية	● Analysis in Algorithms: Basic concepts of complexity measures Recursion ● Basic Data Structures: Vector, linked list, stack, queue, dequeue, tree, trie, set, and hashing ● Search Algorithms: Linear search for unordered/ordered lists, binary search, and interpolation search ● Sorting Algorithms: Insertion sorts, exchange sort, selection sort, merge sort, quicksort, bucket sort, radix sort, and topological sort ● Object-oriented Programming: Abstract classes and abstract methods, encapsulation, superclass and subclass, inheritance, and polymorphism

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	There are a number of teaching and learning activities including lectures, laboratories and group projects. The concepts and principles of complexity analysis in algorithms, data structures, search algorithms, sort algorithms, and object-oriented programming will be covered in lectures. The implantations of data structures and algorithms in an object-oriented language will be taught during the laboratories. Students are required to perform a group project to apply the concepts and principles covered in this course to critically analyses the given problem(s) and creatively formulate the solution(s). Students implement the solution(s) in an object-oriented language.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	3	10% (10)	Continuous	All
	Report	2	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	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 Algorithms and Data Structures
Week 2	Algorithm Complexity and Asymptotic Analysis

Week 3	Sorting Algorithms
Week 4	Sorting Algorithms
Week 5	Searching Algorithms
Week 6	Searching Algorithms
Week 7	First exam
Week 8	Arrays and Pointers
Week 9	Linked List
Week 10	Stack and Queue
Week 11	Tree lecture 1
Week 12	Tree lecture 2
Week 13	Graph
Week 14	Hashing
Week 15	Second try exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Implement Sorting algorithms.
Week 2	Implement Search Algorithms.
Week 3	Student information system using linked list or Color cubes games using Stack
Week 4	A snake game using queue
Week 5	Social Media connections using Graph data structure
Week 6	Simple search engine application using hash table data structure

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Introduction to Algorithm, third Edition, Thomas H. Cormen Algorithms, fourth edition, Robert Sedgewick and Kevin Wayne	Yes
Recommended Texts	Introduction to Algorithm, third Edition, Thomas H. Cormen Algorithms, fourth edition, Robert Sedgewick and Kevin Wayne	Yes
Websites	https://www.coursera.org/learn/data-structures	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Artificial Intelligence Algorithms**	**Module Delivery**

Module Type	**C**		☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**		
Module Code	**AIDC225**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	AI		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIDC210	**Semester**	3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	This module aims to provide a comprehensive understanding of AI algorithms, from foundational concepts to practical applications, and to equip learners with the skills needed to apply these algorithms in real-world scenarios.
Module Learning Outcomes	**After completing the module** Gaining a strong foundation in AI algorithms to address real-world challenges. Gaining

مخرجات التعلم للمادة الدراسية	the ability in applying in different search algorithms, such as depth-first search and breadth-first search.
Indicative Contents المحتويات الإرشادية	This indicative content aims to cover a broad spectrum of AI algorithms, providing students with a comprehensive understanding of foundational concepts, techniques, and their practical applications.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	● Online Courses and Tutorials: Utilize online courses, tutorials, and video lectures to provide structured learning materials. ● Interactive Coding Exercises: Incorporate interactive coding exercises and challenges to reinforce concepts and provide hands-on practice.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	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 Artificial Intelligence
Week 2	Applications of Artificial Intelligence
Week 3	Properties of AI and Characteristics of AI
Week 4	Search Algorithms
Week 5	Structures and Strategies for State Space Search
Week 6	General graph search algorithms and Tree structure search
Week 7	**Mid-term Exam**

Week 8	Blind search such as – Depth First Search. - Breadth Forst Search. - Hybrid First Search.
Week 9	
Week 10	Heuristic Search Algorithm such as A algorithm and A* Algorithm
Week 11	B tree search algorithm and B* tree search algorithm and AVL search
Week 12	Best First Search and Hill climbing search
Week 13	Dijkstra's search algorithm for Shortest Path
Week 14	Kruskal's Algorithm
Week 15	prim's algorithm

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Understanding the implement for the AI code
Week 2	Understanding the theoretical and practical of AL algorithm
Week 3	Structures and Strategies for search algorithms
Week 4	Coding for the tree search and graph sorting
Week 5	Coding for the Blind search
Week 6	Coding for the Heuristic Search
Week 7	Coding for the find the Best First Search and Hill climbing search
Week 8	Coding for the Dijkstra's search algorithm to find the Shortest Path
Week 9	Coding for the Kruskal's Algorithm and prim's algorithm to find the shortest path

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1) Karumanchi, N. (2011). *Data structures and algorithms made easy in java*. CareerMonk Publications. 2) Mehlhorn, K. (2013). *Data structures and algorithms 1: Sorting and searching* (Vol. 1). Springer Science & Business Media.	No
Recommended Texts		
Websites	1) https://www.libgen.is/search.php?req=data+structure+and+algorithms+in+java&open=0&res=25&view=simple&phrase=1&column=def. 2) https://books.google.iq/books?hl=en&lr=&id=zdupCAAAQBAJ&oi=fnd&pg=PA1&dq=+Data+structures+and+algorithms+&ots=6A4Spz6ohf&sig=LlAQSrfmXUkGK1QeR0JYPQtEIkI&redir_esc=y#v=onepage&q=Data%20structures%20and%20algorithms&f=false.	

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية					
Module Title	**English Language II**			**Module Delivery**	
Module Type	**S**			☒**Theory** ☐**Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOA002**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	وسام محمد جاسم		**e-mail**	co.wesam.jasim@uoanbar.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	UOA003	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	▪ Enhancing English speaking, reading and writing ▪ Memorize a big number of vocabularies

	▪ Helping students to deal with the English language in easier ways
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A1. Reading A2. writing A3. Speaking. A4. Listening B. Subject-specific skills B1. Learn scanning and skimming skills in reading B2. Right pronunciation B3. Vocabularies
Indicative Contents المحتويات الإرشادية	● Developing self-confidence through speaking freely ● Understanding English from various accents

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	● Working in groups. ● Home work ● Quizzes and exams. ● Referring to some related specialist subjects.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem)	**200**		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Grammar, reading, writing, listening, vocabulary
Week 2	Grammar, reading, writing, listening, vocabulary
Week 3	Grammar, reading, writing, listening, vocabulary
Week 4	Grammar, reading, writing, listening, vocabulary
Week 5	Grammar, reading, writing, listening, vocabulary
Week 6	Grammar, reading, writing, listening, vocabulary
Week 7	Grammar, reading, writing, listening, vocabulary

Week 8	Grammar, reading, writing, listening, vocabulary
Week 9	Grammar, reading, writing, listening, vocabulary
Week 10	Grammar, reading, writing, listening, vocabulary
Week 11	Grammar, reading, writing, listening, vocabulary
Week 12	Grammar, reading, writing, listening, vocabulary
Week 13	Grammar, reading, writing, listening, vocabulary
Week 14	listening,
Week 15	Grammar, reading, writing, listening, vocabulary
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

Required Texts	• New headway plus pre-intermediate student's book • New headway plus Pre-intermediate Teacher's book	Yes
Recommended Texts	New headway plus pre-intermediate workbook	No
Websites	https://elt.oup.com/student/headway/int/download?cc=global&selLanguage=en	

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Machine Learning Basics**			**Module Delivery**	
Module Type	**C**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**AICD224**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	AI		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Associate Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Ahmed J. Aljaaf		**e-mail**	a.j.aljaaf@uoanbar.edu.iq	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	AIDS214	**Semester**	4
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	Machine Learning Course aims to equipe students with a solid foundation of learning algorithms concepts and theories, including supervised and unsupervised learning. Students are expected to have a comprehensive understanding of the fundamental concepts and techniques of machine learning, regression modules, naive bayes, and more advance concepts including support vector machine and neural networks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students should be able to: 1- Understanding core concepts of machine learning, including supervised and unsupervised learning, neural networks, and various algorithms. 2- Developing a strong foundation in mathematics and statistics, which are essential for understanding machine learning algorithms. 3- Gaining hands-on experience in implementing machine learning algorithms and models using programming languages like Python. 4- Learning how to preprocess and clean data effectively, as high-quality data is crucial for accurate machine learning model training. 5- Understanding how to evaluate the performance of machine learning models, including metrics like accuracy, precision, recall, and F1-score, and techniques like cross-validation. 6- Exploring practical applications of machine learning across various domains, such as healthcare, finance, natural language processing, and computer vision.
Indicative Contents المحتويات الإرشادية	Linear Algebra Probability and Statistics Hypothesis Testing

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Hands-on Practical Exercises Case Studies and Real-World Examples Collaborative Learning Continuous Assessment and Feedback

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Inferential Statistics
Week 2	Hypothesis Testing
Week 3	Introduction to Machine Learning (supervised, unsupervised, reinforcement learning)
Week 4	Linear Regression Module
Week 5	Logistic Regression
Week 6	Naive Bayes
Week 7	Model Selection + (Skill test)
Week 8	Support Vector Machine (SVM)
Week 9	Tree Models
Week 10	Random Forests
Week 11	Boosting
Week 12	Time Series Analysis and Forecasting using ARIMA models
Week 13	Advanced Model Evaluation (Cross-validation and Performance metrics)
Week 14	Capstone Project
Week 15	Case Study + (Skill test)
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	Install Python and essential libraries (e.g., NumPy, scikit-learn). Verify your environment with a "Hello, World!" ML program.
Week 2	Implement a simple linear regression model. Perform data preprocessing and visualize results.
Week 3	Implement a logistic regression model for binary classification. Evaluate the model using accuracy, precision, recall, and F1-score.
Week 4	Implement decision tree models for classification and regression. Explore tree visualization and interpretability.
Week 5	Understand the concept of ensemble learning. Build and evaluate Random Forest models.
Week 6	Learn about boosting algorithms, like AdaBoost and Gradient Boosting. Implement a boosting model for classification.
Week 7	Explore cross-validation methods (e.g., k-fold cross-validation). Learn about various performance metrics (e.g., accuracy, precision, recall).

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Machine Learning Algorithms	No
Recommended Texts	Machine Learning Concepts	No
Websites		

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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**اللغة العربية 2**			**Module Delivery**	
Module Type	**Type S**			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOA002**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		Four
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Dr. SAAD IBRAHIM AHMAD		**e-mail**	E-mail: saad.ibrahim@uoanbar.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1- تعليم الطلبة على اساسيات اللغة العربية وقواعدها 2- تعليم الطلبة على كيفية الاعراب 3- ان يتعلم الطالب على قواعد اللغة العربية 4- أن يتعلم الطالب كيفية بناء الجمل واستخراجها للعنوان المطلوب 5- القدرة على استعمال العبارات الصحيحة 6- القدرة على مشاركة الآخرين في الحوار الصحيح 7- تطوير قدرة الطالب على الحوار والمناقشة في الامور العامة والخاصة 8- تطوير قدرات الطالب في القيام بالأنشطة اللغوية والأدبية 9- تطوير قدرات الطالب على التعامل مع الكتب الرسمية والمخاطبات باللغة السليمة
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- ادارة المحاضرة على نحو تطبيقي مرتبط بواقع الحياة اليومية 2- تكليف الطالب ببعض الانشطة والواجبات 3- المشاركة الفاعلة في قاعة الدرس دليل التزام الطالب وتحمله المسؤولية 4- الالتزام بالموعد المحدد في تقديم الواجبات والبحث 5- الاختبارات الاسبوعية والشهرية ونهاية الفصل تعبر عن الالتزام والتحصيل المعرفي
Indicative Contents المحتويات الإرشادية	1- حث الطلبة على الاهتمام بالجانب الصحي 2- حث الطلبة على الاهتمام بالجانب العلمي 3- ارشاد الطلبة في مجال المحافظة على توقيتات المحاضرات

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- المشاركة بالتحضير في قاعة الدرس 2- طريقة الاسئلة والاجوبة في قاعة الدرس 3- الاختبارات الاسبوعية والشهرية ونهاية الفصل

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5% (5)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	ظرف الزمان وظرف المكان
Week 2	الضمير وأقسامه

Week 3	همزة الوصل
Week 4	الحروف الصغيرة الزائدة على الرسم
Week 5	النسبة والاختصاص
Week 6	الاغراء والتحذير
Week 7	مفردات الاستهلال في الكتب الرسمية
Week 8	علامات الترقيم في الكتابة العربية ومواضع استعمالها : تعريفها ، اقسامها ، اهميتها
Week 9	الفاصلة (،) والفاصلة المنقوطة (؛)
Week 10	النقطة (.) والنقطتان الرأسيتان (:)
Week 11	الشارحة أو الوصلة (-) والشارحتان (--)
Week 12	علامة الاستفهام (؟) وعلامة التعجب (!) وعلامة الحذف (...)
Week 13	الأقواس ، والأقواس المزدوجة ، والألوان
Week 14	الاشارة المائلة (/) والاشارة المائلة المعاكسة (\) واشارة القوة (^) واشارة الضرب (*) واشارة العطف (&)
Week 15	طرق التخلص من التقاء الساكنين عند القراءة
Week 16	امتحان

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- الكتاب : الحوار في شرح الاجرومية ، تأليف السيد بن حسن الديب ، تقريظ : (أ.د. حمزة بن عبدالله – د. عبدالله بن محمد) ، الناشر : (دار الارقم ، مصر) – (دار الرسالة العالمية ، بيروت – لبنان)، الطبعة الاولى ، 1433هـ - 2012م . 2- الكتاب : قواعد اللغة العربية المبسطة ، تأليف : عبد اللطيف السعيد ، الطبعة الثالثة- 2006 . 3- الكتاب : إضاءات لغوية في المخاطبات الادارية ، تأليف: صفاء صابر مجيد البياتي مطبعة المجمع العلمي العراقي، بغداد- العراق ، ط1 ، 1445هـ-2023م.	Yes
Recommended Texts		Yes
Websites	https://www.os-book.com/OS9/	

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.