

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Fundamentals of AI		Module Delivery	
Module Type	Compulsory		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	DS 101			
ECTS Credits	7			
SWL (hr/sem)	63			
Module Level	Level 1	Semester of Delivery		1
Administering Department	Data Science	College	College of Excellence	
Module Leader	Dr. Loay Edward		e-mail	E-mail
Module Leader's Acad. Title	Professor	Module Leader's Qualification		
Module Tutor	Dr. Loay Edward		e-mail	E-mail
Peer Reviewer Name	Dr. Heba M. Fadhil	e-mail	E-mail	
Scientific Committee Approval Date	13/10/2025	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 Aims أهداف المادة الدراسية	This course introduces first-year undergraduate students to the fundamental concepts of Artificial Intelligence (AI). It emphasizes intuitive understanding, interactive learning, and real-world applications over technical depth.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Evaluate the efficacy of machine learning algorithms in enhancing decision-making processes and prediction accuracy by conducting empirical testing and validation, employing suitable evaluation metrics and methodologies. 2. Innovate by suggesting fresh solutions and delving into the advanced facets of AI, showcasing the capability to adapt and employ state-of-the-art techniques to tackle evolving AI-related challenges and possibilities. 3. Synthesize machine learning techniques and algorithms to build and enhance predictive models, illustrating the capacity to derive informed conclusions and enhance accuracy through data-driven improvements. 4. Create intelligent agents that can address intricate challenges through the application of non-informed search, informed search, and exploration algorithms, showcasing proficiency in devising and executing AI solutions. 5. Analyze the ethical implications of artificial intelligence (AI) and machine learning algorithms in diverse real-world applications, scrutinizing possible biases, and suggesting remedies to enhance fairness and transparency. 6. Apply the principles and concepts of AI to tackle real-world challenges in domains like Self-driving Vehicles, Precision Agriculture, and Content Recommendation, demonstrating the practical implementation of AI technologies.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	A mix of teaching strategies such as lectures, discussions, cooperative learning, and problem-based learning

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	10%	10	all	
	Assignments	10%	10	5,10	
	Projects / Lab.				
	Report	10%	10	15	
Summative assessment	Midterm Exam	10%	10	8	
	Final Exam	60%	60	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to AI - AI definition: Developing machines that can perform tasks that typically require human intelligence - History: Dartmouth Summer Research Project (1956), AI winter, resurgence with deep learning - Applications: Virtual assistants (Siri, Alexa), image recognition (self-driving cars), expert systems (medical diagnosis)

Week 2	Intelligent Agents Agent types: • Simple reflex agents: React to current state without considering future consequences • Model-based agents: Maintain internal state to make decisions • Goal-based agents: Make decisions based on goals and priorities
Week 3	• Agent environments: • Fully observable: Agent has complete knowledge of environment • Partially observable: Agent has incomplete knowledge of environment
Week 4	Problem-Solving Methods • Search algorithms: • Uninformed search: Breadth-First Search (BFS), Depth-First Search (DFS) • Informed search: A* search, Best-First Search
Week 5	• Heuristics: Admissible, consistent, and informed heuristics • Local search: Hill climbing, simulated annealing, genetic algorithms
Week 6	Knowledge Representation • Propositional logic: • Syntax: Propositions, logical operators (AND, OR, NOT) • Semantics: Truth tables, validity, satisfiability
Week 7	Predicate logic: • Syntax: Predicates, variables, quantifiers (FORALL, EXISTS) • Semantics: Interpretations, models, entailment • Semantic networks: Representing knowledge as graphs.
Week 8	Machine Learning Fundamentals • Supervised learning • Regression: Linear regression, polynomial regression • Classification: Logistic regression, decision trees • Unsupervised learning:

Week 9	Clustering: K-means, hierarchical clustering - Dimensionality reduction: Principal Component Analysis (PCA) Reinforcement learning: - Agents: Policies, value functions, Q-learning
Week 10	Computer vision: - Image recognition: Object detection, image classification - Applications: Self-driving cars, facial recognition
Week 11	Natural Language Processing (NLP): - Text classification: Sentiment analysis, spam detection - Applications: Chatbot, language translation
Week 12	Neural Networks - Artificial Neurons: Mimic biological neurons, processing inputs with weights and biases. - Activation Functions: Introduce non-linearity, enabling complex representations. - Backpropagation: Computes gradients to optimize weights during training.
Week 13	Deep Learning - Convolutional Neural Networks (CNNs): Effective for image and signal processing. - Recurrent Neural Networks (RNNs): Suitable for sequential data, like text or time series. - Long Short-Term Memory (LSTM) Networks: A type of RNN that handles long-term dependencies.
Week 14	AI Applications - Natural Language Processing (NLP): Enables computers to understand, generate, and process human language. - Computer Vision: Allows computers to interpret and understand visual data from images and videos. - Robotics: Combines AI, machine learning, and robotics to enable

	autonomous decision-making.
Week 15	Key Concepts • Bias-Variance Tradeoff: Balancing model simplicity and complexity. • Overfitting: When models are too complex and perform poorly on new data. • Regularization: Techniques to prevent overfitting.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Artificial Intelligence: A Modern Approach Fourth Edition Global Edition, 4th ed. By Stuart Russell and Peter Norvig.	No
Recommended Texts	• Machine Learning Systems Principles and Practices of Engineering Artificially Intelligent Systems, Vijay Janapa Reddi.	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	Introduction to Programming		Module Delivery	
Module Type	Compulsory		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	GEN 101			
ECTS Credits	7			
SWL (hr/sem)	94			
Module Level	Level 1	Semester of Delivery		1
Administering Department	Data Science	College	College of Excellence	
Module Leader	Dr. Heba M. Fadhil		e-mail	E-mail
Module Leader's Acad. Title	Associate Professor	Module Leader's Qualification		
Module Tutor	Dr. Nizar Dahir		e-mail	E-mail
Peer Reviewer Name	Dr. Nizar Dahir		e-mail	E-mail
Scientific Committee Approval Date	13/10/2025	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 Aims أهداف المادة الدراسية	To master all techniques of software development in the C++ Programming Language and demonstrate these techniques by the solution of a variety of problems spanning the breadth of the language including C++ changes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To express algorithms and draw flowcharts in a language independent manner. 2. To teach how to write program, efficient and readable C++ programs. 3. To impart knowledge in creating and using Arrays of the C++ data types. 4. To impart problems understanding, analyzing skills in order to formulate Algorithms. 5. To provide knowledge about C++ fundamentals: data types, variables, keywords and control structures.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	A mix of teaching strategies such as lectures, discussions, cooperative learning, and problem-based learning

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	10%	10	all	1,2
	Assignments	10%	10	4,8	4,5
	Projects / Lab.	10%	10	all	4,5
	Report	10%	10	15	4,5
Summative assessment	Midterm Exam	10%	10	8	all
	Final Exam	50%	50	16	all
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computers.: Hardware and software and types of software (system software and application software)
Week 2	Programming logic and flowcharts.
Week 3	Introduction to C++, Structure of 'C++' program, Keywords and Identifiers, Data types.
Week 4	Assignment statements, Variables, Precedence of Operators, Evaluation of Expressions.
Week 5	Decision Making using if statement.
Week 6	Types of if ...else block, nested if.
Week 7	Switch case Block
Week 8	Concept of Loop.
Week 9	While loop, Do while loop
Week 10	For loop, break and continue statement.
Week 11	Nested loop.
Week 12	Introduction of Array, 1D Array

Week 13	Two - D Array.
Week 14	Function
Week 15	Function with pointers

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Programming logic and flowcharts.
Week 2	Assignment statements, Variables, Precedence of Operators, Evaluation of Expressions.
Week 3	Decision Making using if statement
Week 4	Switch case Block
Week 5	Concept of Loop.
Week 6	Arrays
Week 7	Functions

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	C++ PROGRAMMING From Problem Analysis to Program Design, 6th ed. By Dr. Malik.	No
Recommended Texts	Problem solving with C++ / Walter Savitch; contributor, Kenrick Mock. -- Ninth edition.	No
Websites	https://www.programiz.com/cpp-programming	

Grading Scheme مخطط الدرجات				
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Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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M MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Critical Thinking	Module Delivery	
Module Type	University Requirement	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	GEN 103		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level		Semester of Delivery	
Administering Department		College	Type College Code
Module Leader	Rasha Abbas Abdullah	e-mail	rasha.a@coeng.uobaghdad.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	

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 Aims أهداف المادة الدراسية	1. Define and apply the core concepts of critical thinking, including its functions, intellectual standards, and virtues. 2. Analyze and evaluate different types of arguments, distinguishing between deductive and inductive reasoning and identifying the components of an argument. 3. Recognize and critique common logical fallacies and cognitive biases in arguments from a variety of sources. 4. Synthesize information and evidence to construct and defend students' own clear, coherent, and persuasive arguments in both written and verbal formats. 5. Apply critical thinking to complex, real-world problems, making informed judgments and proposing solutions with intellectual rigor and empathy. 6. Develop the ability to independently question information, challenge assumptions, and reflect on students' own thinking processes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the premises, assumptions, and conclusions in both written and verbal arguments. 2. Distinguish between strong and weak arguments, and evaluate the evidence presented to support a claim. 3. Apply logical principles to critique students' own and others' reasoning. 4. Demonstrate the ability to identify and explain a variety of common logical fallacies and cognitive biases. 5. Construct a clear, concise, and well-supported argument on a given topic. 6. Formulate probing questions and synthesize information to arrive at an informed judgment or conclusion.

Indicative Contents المحتويات الإرشادية	1. Introduction to Critical Thinking: Definition and purpose, a questioning approach to information, the critical thinking cycle of description, analysis, and evaluation, and the intellectual virtues of a critical thinker. SSWL: 5 hr/sem 2. The Raw Material of Thought: The nature of ideas and originality, and methods for generating ideas through reading, writing, and discussion. SSWL: 3 hr/sem 3. Foundations of Argument: Deconstructing questions and arguments, identifying keywords and terms, and recognizing the basic structure of a reasoned argument with premises and conclusions. SSWL: 7 hr/sem 4. The Logic of Reasoning: The difference between descriptive and analytical thinking, and a focus on how and why questions. SSWL: 5 hr/sem 5. Formal and Informal Logic: An introduction to deductive and inductive reasoning, their structures, and criteria for evaluating their strength and validity. SWL: 10 hr/sem 6. Common Flaws in Reasoning: A study of logical fallacies and cognitive biases, including ad hominem, straw man, confirmation bias, and the availability heuristic. SSWL: 6 hr/sem 7. The Critical Mind in Practice: The role of intellectual standards and virtues in sound reasoning, and the importance of metacognition. SSWL: 4 hr/sem 8. Creating and Evaluating Arguments: Applying critical thinking skills to make reasoned judgments, synthesize multiple viewpoints, and construct clear, well-supported arguments. SSWL: 6 hr/sem 9. Critical Thinking in the Real World: Applying the critical thinking cycle to everyday problems, assessing risk, and making informed decisions in academic and professional contexts. SSWL: 3 hr/sem
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Lectures and In-Class Discussions: Presenting foundational theories and concepts while encouraging active student participation through in-class discussions and questioning. 2. Case Study Analysis: Using real-world examples and hypothetical scenarios to allow students to apply critical thinking principles to complex situations and evaluate competing arguments. 3. Group Activities and Peer Review: Facilitating collaborative exercises where students work together to identify logical fallacies, analyze arguments, and provide constructive feedback on each other's work. 4. Presentations: Assigning presentations to allow students to construct and deliver a well-structured argument on a specific topic, enhancing their ability to communicate complex ideas clearly. 5. Problem-Based Learning: Presenting students with an ill-defined problem or a question that requires them to research, analyze, and synthesize information from multiple sources to propose a solution or form a well-reasoned conclusion. 6. Reflection and Metacognition: Encouraging students to regularly reflect on their own thinking processes through journal entries or short assignments, helping them identify biases and areas for improvement. 7. Active Learning and Multimedia Integration: Integrating short, hands-on tasks and projects throughout the semester that require students to build and present arguments, and using short videos and other multimedia to illustrate key concepts. 8. Public Survey: Engaging students in the design, execution, and analysis of a public survey to provide them with a practical opportunity to test a hypothesis, collect empirical data, and evaluate real-world evidence. 9. Analytical Reading and Writing: Requiring students to read and critically analyze articles from academic and popular sources, focusing on identifying the author's main claim, supporting evidence, and underlying assumptions. This strategy will culminate in short analytical writing assignments.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	49	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	101	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
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	4	10%	Weeks 3, 6, 9, 12	Identify premises, distinguish between arguments, and identify fallacies.
	Assignments	4	20%	Week 4, 7, 10, 13	Evaluate arguments, apply principles, and construct arguments.
	Projects	2	10%	Week 7, 14	Synthesize information, formulate questions, and apply them to the real world.
Summative assessment	Midterm Exam	2 hr	10%	Week 6	Identify, distinguish, and apply principles.
	Final Exam	2 hr	50%	Week 16	All outcomes.
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	Introduction to Critical Thinking
Week 2	The Raw Material: Ideas and Sources
Week 3	Question Analysis and Argument Structure
Week 4	Descriptive Questions (The What, Who, When, Where)
Week 5	Analytical Questions (The How and Why)
Week 6	Deductive and Inductive Reasoning
Week 7	Logical Fallacies
Week 8	Midterm Exam
Week 9	Cognitive Biases and Heuristics
Week 10	Evaluative Questions (The What If, So What)
Week 11	The What Next? and Synthesis
Week 12	Organizing and Structuring Work
Week 13	Constructing a Convincing Argument
Week 14	The Critical Thinking Cycle in the Real World
Week 15	Final Review and Summary

Week 16	Final Exam
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Delivery Plan (Weekly Learning Activity / Lab Syllabus) المنهاج الاسبوعي للمختبر			
Week	Topic	Learning Activity / Lab	Evaluation
Week 1	Introduction to Critical Thinking: What is an Argument?	Combined Lecture/Lab: Introduce the core concepts and do an in-class discussion on what makes up an argument.	-
Week 2	Identifying Premises and Conclusions: The Structure of Logic	Combined Lecture/Lab: Teach argument structure and have students analyze a short article in class.	-
Week 3	Understanding Logical Fallacies	Combined Lecture/Lab: Introduce common fallacies and do an in-class group activity identifying fallacies.	Quiz 1 (2.5%)
Week 4	Cognitive Biases and Metacognition	Combined Lecture/Lab: Teach the science of thinking and have students begin their reflection journals in class.	Assignment 1 (Analytical Reading - 5%)
Week 5	Evaluating Evidence: Facts vs. Opinions	Combined Lecture/Lab: Teach how to evaluate sources and begin a case study analysis in class.	-
Week 6	Inductive vs. Deductive Reasoning	Combined Lecture/Lab: Teach reasoning types and have students work through exercises in class.	Quiz 2 (2.5%)
Week 7	Constructing a Well-Reasoned Argument	Combined Lecture/Lab: Review the elements of a strong argument and begin outlining a persuasive essay in class.	Assignment 2 (Case Study Analysis - 5%)
Week 8	Midterm Review	Combined Lecture/Lab: Review topics from the first half of the course and hold a Q&A session.	Midterm Exam (10%)
Week 9	The Public Survey as Evidence	Combined Lecture/Lab: Teach survey methodology and have students design a survey in class.	Quiz 3 (2.5%)
Week 10	Principles of Presentation and Communication	Combined Lecture/Lab: Review effective presentation skills and have students do peer reviews in class.	Assignment 3 (Metacognition/Reflection - 5%)
Week 11	Problem-Based Learning Introduction	Combined Lecture/Lab: Introduce the final group project and assign teams in class.	-
Week 12	Synthesizing Information and Data	Combined Lecture/Lab: Teach how to synthesize sources and have groups work on their projects in class.	Quiz 4 (2.5%)
Week 13	Preparing for the Final Presentation	Combined Lecture/Lab: Review for the final exam and have groups do their final practice runs in class.	Assignment 4 (Public Survey Proposal - 5%)
Week 14	Group Project Presentations	Presentations: All groups present their final projects.	Group Project (10%)

Week 15	Final Exam Review	Combined Lecture/Lab: A comprehensive review of all course topics.	-
Week 16	Final Exam	-	Final Exam (50%)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Critical Thinking: A Student's Introduction (fourth Edition), Gregory Bassham, William Irwin, Henry Nardone, and James M. Wallace. McGraw-Hill, New York, 2011 Critical Thinking: A Concise Guide, Tracy Bowell and Gary Kemp. Routledge, London, 2002	No
Recommended Texts	The Art of Reasoning: An Introduction to Logic and Critical Thinking (fourth edition), David Kelley. Norton & Company Inc., USA, 2014	No
Websites	https://fiveable.me/critical-thinking	

Grading Scheme مخطط الدرجات				
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Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics 1		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	GEN 102		
ECTS Credits	7		
SWL (hr/sem)	112		
Module Level		Semester of Delivery	1
Administering Department		College	Type College Code
Module Leader	Shaymaa MukhlifShraida Rawaa Abdulsatar		e-mail shaimaa.m.sh@ihcoedu.uobaghdad.edu.iq rawaa.abdulsatar1203a@sc.uobaghdad.edu.iq
Module Leader's Acad. Title	1. Assist. Prof. 2. Assist. Lecturer		Module Leader's Qualification P.hD M.Sc
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		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 Aims أهداف المادة الدراسية	1. Understand the course topics and related mathematical problems. 2. Remember the information and laws given in the course 3. Analyze the question text and organize the information to utilize it insolving and obtaining correct results. 4. Forming ideas about the course material and how to devise appropriatelaws to solve it. 5. Use the appropriate laws to solve each problem. 6. Be able to link between topics that can be connected within thecourse content.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student is expected to 1. Recognize the types of the functions, determine the domain and the rang of the function, understanding composition function and Trigonometric Function, understand the concept of the Invers of Trigonometric function and the concept of Hyperbolic Functions. 2. Evaluate the limits of functions,apply related theorems to analyze the behavior of functions 3. Recognize the different betweeninfinity limit and infinite limits from positive integers, understanding the vertical asymptote. 4. Determine continuity at a point, continuity of polynomials and rational functions, understand the meaning of discontinuities, solving problems of continuity of trigonometric functions. 5. Understand the concept of derivatives, recognize the meaning of the tangent to a curve at a point, calculate the slope of a tangent line, differentiation Rules. 6. Determine a new value of a quantity from the old value and the amount of change, calculate the average rate of change, applying rates of change to displacement, velocity, and acceleration. 7. Find the derivatives of the sine and cosine function,find the derivatives of the standard trigonometric functions, calculate the higher-order derivatives of the sine and cosine. 8. State the chain rule for the functions, recognize the chain rule for a composition of three or more functions,Describe the proof of the chain rule. 9. Define the related rate, solving related rate problems, describe the linear approximation to a function at a point, calculate the relative error and percentage error in using a differential approximation. 10. Midterm Exam

	11. Calculate the derivative of an inverse function, recognize the derivatives of the standard inverse trigonometric functions. 12. Find the derivative of a complicated function by using implicit differentiation, use implicit differentiation to determine the equation of a tangent line. 13. Express changing quantities in terms of derivatives, how derivatives are used to find maximum and minimum values of functions, solve applied optimization problems. 14. Describe the steps of Newton's method, explain what an iterative process means, recognize when Newton's method does not work. 15. Calculate the partial derivatives of a function of two variables, calculate the partial derivatives of a function of more than two variables, determine the higher-order derivatives of a function of two variables, Explain the meaning of a partial differential equation and give an example. 16. Final Term Exam
Indicative Contents المحتويات الإرشادية	• Functions Definition, types of the functions, the domain and the rang, Function Composition, Trigonometric Function, Trigonometric Identities, Invers of Trigonometric function, Hyperbolic Functions. • Limits Definition of limit, theorem of the limit, limits law, infinity limit, infinite limits from positive integers, Definition of vertical asymptote, the behavior of a function at different points. • Continuity continuity at a point, continuity of polynomials and rational functions, discontinuities, continuity of trigonometric functions. • Tangents and Derivatives Definition of a derivatives, recognize the meaning of the tangent to a curve at a point, calculate the slope of a tangent line, differentiation Rules. • The derivatives as a rate of change A new value of a quantity from the old value and the amount of change, calculate the average rate of change, apply rates of change to displacement, velocity, and acceleration. • Derivatives of trigonometric functions The derivatives of the sine and cosine function, the derivatives of the standard trigonometric functions, the higher-order derivatives of the sine and cosine. • The Chain rule and Parametric equations The chain rule for the functions, the chain rule for a composition of three or more functions, the proof of the chain rule. • Related rates linearization and Differentials

	The related rate, solving related rate problems, the linear approximation to a function at a point, the relative error and percentage error in using a differential approximation. • Derivatives of inverse functions The derivative of an inverse function, the derivatives of the standard inverse trigonometric functions. • Implicit differentiation The derivative of a complicated function by using implicit differentiation, implicit differentiation to determine the equation of a tangent line. • Application of derivatives Changing quantities in terms of derivatives, find maximum and minimum values of functions, applied optimization problems. • Newton's methods The steps of Newton's method, what an iterative process means, when Newton's method does not work. • Partial derivative the partial derivatives of a function of two variables, the partial derivatives of a function of more than two variables, the higher-order derivatives of a function of two variables, the meaning of a partial differential equation and give an example.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Teaching using the discussion method between the student and the instructor to support viewpoints. 2. Collaborative learning by assigning students to prepare reports on course topics. 3. Teaching using the one-minute paper technique, like competitions to foster enthusiasm among students. 4. Learning by making the student as a teacher to enhance his self-confidence. Learning using problem-solving strategy.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)		Structured SWL (h/w)	
الحمل الدراسي المنتظم للطالب خلال الفصل	63	الحمل الدراسي المنتظم للطالب أسبوعيا	4

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	49	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	112		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (5)	4 12	1,2 9, 11
	Assignments	2	20% (10)	6 13	3,4,5 11,12
	Projects / Lab.	0	0	---	---
	Report	2	10% (5)	8 14	4,5,6,7 11,12,13
Summative assessment	Midterm Exam	2hr	10% (10)	10	1-8
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Functions and Trigonometric Functions
Week 2	One-Sided Limits and Limits at Infinity
Week 3	Infinite Limits and Vertical Asymptotes
Week 4	Continuity
Week 5	Tangents and Derivatives
Week 6	The Derivative as a Rate of Change
Week 7	Derivatives of Trigonometric Functions
Week 8	The Chain Rule and Parametric Equations
Week 9	Related Rates Linearization and Differentials
Week 10	Midterm exam
Week 11	Derivatives of inverse Functions

Week 12	Implicit Differentiation
Week 13	Application of derivatives
Week 14	Newton's method for approximating solutions of equations
Week 15	Partial derivative
Week 16	Final term exam

Delivery Plan (Weekly Lab. Syllabus) المناهج 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	Thomas' Calculus 11ed	
Recommended Texts	Calculus, ANTON BIVENS, DAVIS 10th ed.	
Websites	https://ocw.mit.edu/courses/18-06-linear-algebra-spring-2010/video_galleries/video-lectures/	

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	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOB102		
ECTS Credits	3		
SWL (hr/sem)	33		
Module Level		Semester of Delivery	1
Administering Department		College	
Module Leader	Alhakamhameed Ali Hameed		e-mail: Alhakamhameed.a@uobaghdad.edu.iq
Module Leader's Acad. Title	Ph.D.	Module Leader's Qualification	
Module Tutor	Name (if available)		e-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This module aims to help non-departmental first-year students build essential English skills and gain confidence in using the language in academic and everyday situations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students will be able to communicate using basic English in everyday and academic situations, understand main ideas in short spoken and written texts, produce simple, clear sentences in speaking and writing, participate effectively in basic classroom tasks, and apply study skills such as note-taking and summarizing.
Indicative Contents المحتويات الإرشادية	Basic vocabulary and grammar, short reading and listening tasks, simple speaking practice, and basic sentence-level writing.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Interactive, student-centered activities including speaking, listening, reading, writing, and group work with guided feedback.

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	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	2	10% (5)	4	1,2

assessment				12	9, 11
	Assignments	2	20% (10)	6 13	3,4,5 11,12
	Projects / Lab.	0	0	---	---
	Report	2	10% (5)	8 14	4,5,6,7 11,12,13
Summative assessment	Midterm Exam	2hr	10% (10)	10	1-8
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المناهج الاسبوعي النظري	
	Material Covered
Week 1	Introduction & basic greetings
Week 2	Classroom expressions and simple questions
Week 3	Basic vocabulary – daily life
Week 4	Simple sentence structure
Week 5	Reading short texts and comprehension
Week 6	Listening for main ideas
Week 7	Speaking practice – introductions and discussions
Week 8	Writing simple sentences and short paragraphs
Week 9	Functional grammar – present tense
Week 10	Monthly exam
Week 11	Vocabulary expansion – academic contexts
Week 12	Listening and speaking integration
Week 13	Reading comprehension and summarizing
Week 14	Writing practice – paragraph development
Week 15	Speaking – classroom discussions and presentations
Week 16	Review of all skills

Delivery Plan (Weekly Lab. Syllabus)

المناهج الأسبوعي 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	Headway 1 (Oxford University Press)	yes
Recommended Texts	Supplementary short reading passages and graded listening materials	
Websites	Selected online resources for practice and exercises	

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	Democracy and Human Rights		Module Delivery
Module Type			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	11CHlr		
ECTS Credits			
SWL (hr/sem)			
Module Level		Semester of Delivery	
Administering Department		College	Type College Code
Module Leader	Dr.jinanAbd Alrazaq Fattah		e-mail janan@copharm.uobaghdad.edu.iq
Module Leader's Acad. Title	Ph.D.	Module Leader's Qualification	
Module Tutor	Name (if available)		e-mail jana@copharm.uobaghdad.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	وأبرز خصائصها ومصادرها والمراحل التاريخية التي مرت بها حقوق الإنسان. إتعريف الطلبة بحقوق الإنسان والتعرف على كيفية ممارسة الحقوق السياسية والتعرف على الإعلان العالمي لحقوق الإنسان والمواثيق الدولية والمعاهدات التي نصت على حقوق الإنسان والحريات.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	تحديد الوسائل المعرفية لحقوق الإنسان والإرشاد عن كيفية استخدام الأدوات القانونية اللازمة لحقوق الإنسان وزيادة الوعي لدى الطلبة في كيفية الدفاع عن حقوق الإنسان .
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	

Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل		Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل		Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل			

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	٣	٢٠ %	٣, ٦, ١٢	
	Assignments	٢	١٠ %	٤, ٨	

	Projects / Lab.	-			
	Report	١	١٠%	١٣	
Summative assessment	Midterm Exam	١	١٠%	٨	
	Final Exam	٣	٥٠%	١٦	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	التعرف على مفهوم حقوق الانسان وصفات حقوق الانسان
Week 2	التعرف على التطور التاريخي لحقوق الانسان عبر العصور
Week 3	التعرف على الحقوق المدنية والسياسية والاقتصادية وغيرها
Week 4	مناقشة حقوق الانسان في الدستور
Week 5	التعرف على الإعلان العالمي لحقوق الانسان
Week 6	الليات الوطنية والاجرائية لحقوق الانسان
Week 7	مفهوم الشريعة الدولية لحقوق الانسان
Week 8	الأسئلة العلمية
Week 9	حقوق المرأة والطفل وذوي الإعاقة في المواثيق الدولية
Week 10	امتحان شهري
Week 11	ليات الحماية الدولية والإقليمية لحقوق الانسان وسبل المساءلة
Week 12	المفاهيم التاريخية لنشأة الديمقراطية واسسها
Week 13	تطور الديمقراطية في العصر الحديث ومتلازماتها
Week 14	الديمقراطية في القرن العشرين بين الشمولية والتوسع العالمي
Week 15	أنماط الديمقراطية وتطورها في السياقات المعاصرة
Week 16	المؤسسات واليات الديمقراطية

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	حقوق الانسان والديمقراطية للدكتور مصدق عادل طالب وآخرون	yes
Recommended Texts	حقوق الانسان في الإسلام والدساتير العربية للدكتور نواف كنعان	
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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