MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Object Oriented Programming 2**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**Soft-223**				
ECTS Credits	**6**				
SWL (hr/sem)	**140**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: thaer faraj ali		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	m.sc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Thaer faraj		**e-mail**	E-mail	
Scientific Committee Approval Date	2025/2/10		**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 Objectives أهداف المادة الدراسية	1. Teaching the students the concept of the functions and how to call and passing values to them, Function Overloading and Inline function concepts. 2. Studying the Basic of Object Oriented Programming (OOP) and its features (Encapsulation, Inheritance, Polymorphism) 3. Teaching students Constructor and Destructors ,Friend Function and Friend Classes Constant Member Functions and Constant Objects ,Static Data Member and Static Function, Pointer to Objects and Array of Objects 4. Teaching students Operator Overloading (Unary and Binary Operator Overloading). 5. Teaching students Inheritance Feature with its types 6. Teaching students Polymorphism Feature with virtual functions 7. Teaching students Function Template and class Template
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Perform Functions Concepts such as passing parameters, Overloading and Inline. 2. Understanding the Concept of Object Oriented Programming: Object and Class, 3. Understanding the meaning of Constructor and Destructors. 4. Understanding the meaning of Friend Function and Friend 5. Perform Classes Constant Member Functions and Constant Objects, Static Data Member and Static Function. 6. Understanding the concept of Unary and Binary Operators Overloading 7. Learn how to deal with types of Inheritances Single , Hierarchical ,Multilevel, and Multiple Inheritances 8. Capable of using Polymorphism and Dynamic Binding 9. Give the student the ability of using Function Template and class Template
Indicative Contents المحتويات الإرشادية	1- Explain how to define Overloading and Inline functions, objects with encapsulation data, Constructor and Destructors functions. 2- Explain how to use Operators Overloading, with various types and types of Inheritances 3- Let the students see many examples about Polymorphism and Template

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**140**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	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	Encapsulation
Week 2	Polymorphism
Week 3	Files
Week 4	Exceptions
Week 5	Data structures and standard template library
Week 6	Vectors
Week 7	List
Week 8	Stack
Week 9	Queue
Week 10	Deque
Week 11	Set
Week 12	Map
Week 13	Iterators
Week 14	Algorithms
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Encapsulation
Week 2	Polymorphism
Week 3	Files
Week 4	Exceptions
Week 5	Data structures and standard template library
Week 6	Vectors
Week 7	List
Week 8	Stack
Week 9	Queue
Week 10	Deque

Week 11	Set
Week 12	Map
Week 13	Iterators
Week 14	Algorithms
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Joyce Farrell, "Object-Oriented Programming Using C++", Fourth Edition, Course Technology, 2009.	
Recommended Texts	1. Bjarne Stroustrup, "Programming Principles and Practice Using C++", Second Edition, Addison-Wesley, 2014.	
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	**English language 2**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**Uni-202**				
ECTS Credits	**2**				
SWL (hr/sem)	**110**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: sara hazim		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	M.SC	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	10/2/2025		**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 Objectives أهداف المادة الدراسية	1. To understand vocabulary and phrases, and develop reading skills. 2. To understand grammar, and develop writing skills. 3. To develop Listening and Speaking by listening to a selected conversations on technical topics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To develop reading skills. 2. To develop writing skills. 3. To develop Listening and Speaking skills
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students

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	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**110**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO 3-4-5-6
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	10% (10)	13	LO #4-5-6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1-6
	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 language acquisition
Week 2	A World of Differences
Week 3	The Working Week
Week 4	Reading passages
Week 5	Exam
Week 6	Our Changing World
Week 7	Passion
Week 8	Terminology of IT programming
Week 9	All Things High Tech
Week 10	Reading Passage
Week 11	Terminology of IT programming
Week 12	Academic Writing
Week 13	Exam
Week 14	Revision

Week 15	Final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New Headway Intermediate.	
Recommended Texts	English for specific purposes British Council.	
Websites	http\\readingcomprehension\onlinetests.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	**Arabic language**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**Wu21**				
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	Name:Zahra raheem		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	M.SC	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	10/2/2025		**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 Objectives أهداف المادة الدراسية	
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

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	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO 3-4-5-6
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	10% (10)	13	LO #4-5-6

Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1-6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	أصول اللغة العربية واقسام الكلام
Week 2	**انتشار اللغة العربية**
Week 3	الجملة العربية
Week 4	المبتدأ والخبر
Week 5	البلاغة والتعبير الابداعي
Week 6	فن الخطابة
Week 7	التفريق بين الضاد والظاء
Week 8	اختبار
Week 9	كان واخواتها و أن واخواتها
Week 10	الفرق بين التاء المربوطة والهاء المربوطة
Week 11	قواعد العدد والمعدود
Week 12	مهارات تصميم المخاطبات الرسمية
Week 13	رسم الهمزة
Week 14	علامات الترقيم في اللغة العربية
Week 15	اختبار

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
	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	Data Structures 2			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	Soft-224				
ECTS Credits	**6**				
SWL (hr/sem)	**125**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: saif ali		**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	Saif ali		**e-mail**	E-mail	
Scientific Committee Approval Date	10/2/2025		**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 Objectives أهداف المادة الدراسية	Getting to know the concept of data structures Knowing the functions of data structures Getting to know the applications of data structures
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1-Understand the fundamental concepts of data structures and their importance in programming. 2-Learn about linear data structures, such as arrays, linked lists, stacks, and queues. 3-Study non-linear data structures, including trees (binary trees, binary search trees, AVL trees, etc.) and graphs. 4-Analyze the time and space complexities of various data structure operations. 5-Implement data structures using programming languages and apply them to solve real-world problems. 6-Learn about algorithms for searching, sorting, and traversing data structures.
Indicative Contents المحتويات الإرشادية	Introduction of data structure, Type of data structure, Memory representetionforD1 and D2, Linear list &types, Stack operations, Application of stack, Queue operations, Applications of Queue, Circular Queue, Linked list, Linked Stack, Linked Queue

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures (Theoretical and Practical) 1-Enhance the student's ability to build programs 2-Develop these programs

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO 3-4-5-6
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	10% (10)	13	LO #4-5-6
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1-6
	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 Structures: How to choose the suitable data structure Types of data structures
Week 2	Memory Representation Introduction to Abstract Data Type
Week 3	Stack The Stack Abstract Data Type Array Stack Stack Operations Time Complexity of these operations
Week 4	Applications of stack operations
Week 5	The Queue Abstract Data Type Queue operations Time Complexity of operations
Week 6	Circular Queue and Priority Queues:

	The Abstract Data Type Operations
Week 7	Lists : Array list The array List Abstract Data Type
Week 8	Lists : Array list The array List Abstract Data Type
Week 9	Linked List Storage Allocation Pointers Linked List Abstract Data Type
Week 10	Traversing a Linked List Linked List Operations
Week 11	Linked List Design Modification : Circular Linked List Circular Linked List Operations
Week 12	Traversing Circular Linked List
Week 13	Linked List Design Modification : Doubly Linked List Doubly Linked List Operations
Week 14	Linked Stack , Linked Queue , Linked Circular
Week 15	Queue Operations
Week 16	Queue Operations

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Applications of stack operations
Week 2	The Queue Abstract Data Type Queue operations

	Time Complexity of operations
Week 3	Circular Queue and Priority Queues: The Abstract Data Type Operations
Week 4	Lists : Array list The array List Abstract Data Type
Week 5	Lists : Array list The array List Abstract Data Type
Week 6	Linked List Storage Allocation Pointers Linked List Abstract Data Type
Week 7	Mid-term Exam
Week 8	Traversing a Linked List Linked List Operations
Week 9	Linked List Design Modification : Circular Linked List Circular Linked List Operations
Week 10	Traversing Circular Linked List
Week 11	Linked List Design Modification : Doubly Linked List Doubly Linked List Operations
Week 12	Linked Stack , Linked Queue , Linked Circular
Week 13	Queue Operations
Week 14	Queue Operations
Week 15	Final exam

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	[1]: MICHAEL McMillan. Title :" Data Structures and Algorithms Using C#" , 2007 [2]: Thomas H. Cormen , CHARLES E. LEISERSON Title :"Introduction to Algorithms ", third edition ,2009	Yes
Recommended Texts	Special requirements (include for example workshops, periodicals, IT software, websites)	
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	**Statistics**			**Module Delivery**	
Module Type	**Elective**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	Soft-225				
ECTS Credits	**4**				
SWL (hr/sem)	**110**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: elaf baha		**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	Elaf baha		**e-mail**	E-mail	
Scientific Committee Approval Date	10/2/2025		**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 Objectives أهداف المادة الدراسية	A. Knowledge of basic concepts in statistics and statistical data. B. How to present and represent statistical data graphically. C. Study measures of central tendency. D. Study measures of dispersion, skewness, and kurtosis. E. Knowledge of probability theory. F. Knowledge of random variables and probability distributions. G. Acquire the skill of regression and correlation analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Active Learning: Encourage students to actively apply their knowledge through exercises, lab work, and in-class problems. The more engaged they are with the material, the better they will understand it. Collaboration: Consider allowing students to collaborate, but set clear boundaries. Equal collaboration can enhance understanding and encourage peer discussion.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	46	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**110**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO 3-4-5-6
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	10% (10)	13	LO #4-5-6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1-6
	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 Population, samples , type of samples ,Random variables ,discrete variable ,continuous variable, Data Organization frequency distribution
Week 2	frequency distribution histogram
Week 3	measurement of central tendency mean ,median , mode
Week 4	measurements of variation standard deviation, variance, coefficient of variation
Week 5	Probability Theory sample space, events ,rules of probability, Venn Diagram, tree diagram, probability theory
Week 6	Addition theorem Multiplication theorem
Week 7	Counting techniques Factorial, Permutations ,Combinations
Week 8	Conditional probability Bayes theorem Independent of events
Week 9	Discrete Probability distributions Binomial distribution Multinomial distribution

Week 10	Poisson distribution Continuous Probability Distributions Uniform distribution
Week 11	Normal distribution
Week 12	Exponential distribution
Week 13	Correlation and Regression
Week 14	Review
Week 15	Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Statistics: theories and applications, Joseph Inungo, 2006.**	
Recommended Texts	**Introduction to statistics and probability**	
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	**Microprocessor and Computer Archecture**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**Soft-221**				
ECTS Credits	**6**				
SWL (hr/sem)	**140**				
Module Level	4		**Semester of Delivery**	3	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: illyas khudhair		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	m.sc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name: illyas khudhair		**e-mail**	E-mail	
Scientific Committee Approval Date	10/2/2025		**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 Objectives أهداف المادة الدراسية	1. Students acquire skills in dealing with the internal computer system infrastructure to provide a solid foundation in the basics of microprocessors and their applications 2. Inform students about the historical development of processors 3. Understand the microprocessor infrastructure 4. Knowing the processor command sets 5. Connecting input and output devices to the processor 6. Show students the types of microprocessors 7. Introduce students to the basics of assembly language 8. Create new products using assembly language programming and solve real-time problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learning how to implement instructions using Microprocessor registers. 2. To provide a solid foundation on the fundamentals of microprocessors and applications.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to Microprocessor and Microcomputer system. • Microprocessor Architecture and Register Set. • System Buses • Memory types and physical addressing. • I/O devices Instruction Set and Format Addressing Modes Introduction to Assembly Programming Language. • Arithmetic and logical Instructions (Shift and Rotate). • Program Control (interrupt and subroutine call).

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	140		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO 3-4-5-6
	Projects / Lab.	1`	5% (5)	Continuous	All
	Report	1	10% (10)	13	LO #4-5-6
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1-6
	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 microprocessor
Week 2	Introduction to microcomputer system
Week 3	Microprocessor Architecture
Week 4	Register Set
Week 5	System Buses
Week 6	Memory types and physical addressing
Week 7	I/O devices

Week 8	Instruction Set and Format
Week 9	Addressing mode (real mode, protected mode)
Week 10	Introduction to Assembly Language Programming
Week 11	Arithmetic and logical Instructions (Shift and Rotate)
Week 12	Appling Examples
Week 13	Program Control (interrupt and subroutine call)
Week 14	Appling Examples
Week 15	Exam

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي العملي	
	Material Covered
Week 1	Data transfer instruction Load & MOVE
Week 2	Examples for Load & Move
Week 3	Arithmetic instruction ADD, SUB, MULT, DIV
Week 4	Examples of arithmetic instruction , and addition XCHN, COMP, JMP, JNZ.
Week 5	Logic instruction, shift , rotate, AND, OR, XOR NOR, NOT.
Week 6	Examples of logic instruction
Week 7	The addressing mode in 8 bit register
Week 8	Examples of direct register and Immediate register
Week 9	The addressing mode in 16 bit register
Week 10	Examples of direct, indirect, base, index, and base-index register
Week 11	The addressing mode in 32 bit register
Week 12	Examples of direct, indirect, base, index, and base-index register
Week 13	Bit scan and bit test register
Week 14	Examples
Week 15	Exam

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

Required Texts	1. Abel P., "IBM PC Assembly Language and Programming", 4th Edition, Prentice Hall, 1998. 2. M. M. Mano, "Computer system architecture" third edition, prentice Hall, 1993. 3. Walter A. Triebel, "The 80386, 80486, and Pentium® Processors Hardware, Software, and Interfacing", 1998. 4. Abel P., "IBM PC Assembly Language and Programming", 4th Edition, Prentice Hall, 1998.	
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	**Concepts of Database 2**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**Soft-222**				
ECTS Credits	**6**				
SWL (hr/sem)	**125**				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: ahmed shakir		**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: ahmed shakir		**e-mail**	E-mail	
Scientific Committee Approval Date	2025/2/10		**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 Objectives أهداف المادة الدراسية	1.Understand Database basic concepts 2. Have the knowledge about database management system 3. Have the knowledge about relational database 4. Enables the students to design a relational database. 5. Enables the learners to analyze the database and discover errors (redundancy and anomalies) 6. Enables the learners to have the idea about how queries are executed in the database.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Enabling the student to know and understand the theoretical principles of database and analyze database. 2. Describe real world issues using ER model or Relational Model. 3. Learn database languages and have the knowledge about SQL and have ideas how to deal with database management system. 4. Understand how transactions are executed. 5. Enable the student to know and understand how the query executed in the system. 6. Gain and use Logical thinking. 7. The ability to communicate and work in a team.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures (Theoretical and Practical) 1-Enhance the student's ability to build programs 2-Develop these programs

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	20% (20)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	5% (5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	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, Database definition, the purpose of database, Database Management System Definition and Advantages, File system and DBMS comparison.
Week 2	Database Abstraction, Definitions in Database (Instance and schema)
Week 3	Entity Relationship Model (Entities Relationships and Attributes) Relational Model (Tables, Records, keys), ER and Relational model examples
Week 4	Mapping ER and Relational models, Cardinality, Weak Entity
Week 5	Tables joining (Cross join, Inner join, Outer join)
Week 6	Indexing: Primary index and Index Update
Week 7	Secondary Index, Hash index
Week 8	Database Administrator, Database Design process
Week 9	Database Anomaly (redundancy, insertion, deletion, update)
Week 10	Normalization and Frist Example, Normalization Second Example, *Quiz*
Week 11	Transaction, Transaction Concurrent Execution

Week 12	Fundamentals of Relational algebra (Query processing)
Week 13	System Architecture
Week 14	Database Security, Access Control, Encryption
Week 15	Exam

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي العملي	
	Material Covered
Week 1	Introduction, Network Definition, IP address, Client Server
Week 2	Virtual Memory Settings, Network Card Setting, Software Installation
Week 3	Introduction to SQL, Data types
Week 4	Create Table, Insert (into all and some columns)
Week 5	Select statement with Where Condition
Week 6	Alter table (Add Column, update data type, delete a column and rename column)
Week 7	Delete a table and rename table, Update field(s), Delete record(s)
Week 8	Table Joining
Week 9	String Functions
Week 10	Math Functions
Week 11	View
Week 12	Introduction to PL/SQL
Week 13	Conditions with examples
Week 14	Loops with Examples
Week 15	Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Stefano Geri and Giuseppe Pelagatti (1984), Distributed Data Bases Principles and Systems, Mc-Graw Hill.	
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
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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.