



## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Discrete Mathematics</b>		Module Delivery
Module Type	<b>Support</b>		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Seminar
Module Code	<b>NSDC104</b>		
ECTS Credits	<b>6</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	<b>1</b>	Semester of Delivery	
Administering Department	NSD	College	CSIT
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		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

<b>Module Aims</b> أهداف المادة الدراسية	The course aims to provide students with a solid understanding of the fundamental concepts and principles of discrete mathematics. This includes topics such as sets, logic, proof techniques, functions, relations, and combinatorics.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	Demonstrate a solid understanding of fundamental concepts in discrete mathematics, including sets, logic, proof techniques, functions, relations, and combinatory.  Apply discrete mathematical techniques and methods to solve problems in various contexts, including computer science, algorithms, and cryptography.
<b>Indicative Contents</b> المحتويات الإرشادية	Sets and Logic Proof Techniques Functions and Relations Combinatorics

### Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	Active Learning Concrete Examples and Visualization Step-by-Step Approach Scaffolding Problem-Solving Strategies
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### Student Workload (SWL)

الحمل الدراسي للطالب

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	47	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3.1
<b>Unstructured SWL (h/sem)</b>	87	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	6



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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to discrete mathematics
Week 2	Set theory: Set Operations
Week 3	Sequences and Summations
Week 4	Cardinality of Sets and Matrices
Week 5	Logic: Propositional Logic and its applications
Week 6	Mathematical Induction and Recursion
Week 7	Functions: Type of function (one-to-one & invertible function)
Week 8	Geometrical characterization of functions
Week 9	Relation: Computer representation of relations and Digraph
Week 10	Manipulation of relations, Properties of relations Composition of relations
Week 11	Graph theory: Graphs and Graph Models
Week 12	Graph Terminology and Special Types of Graphs
Week 13	Representing Graphs and Graph Isomorphism Connectivity



Week 14	Tree: Introduction to Trees, Applications of Trees
Week 15	Tree Traversal, Spanning Trees
Week 16	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		
Recommended Texts		
Websites		



### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.