



وزارة التعليم العالي والبحث العلمي

جهاز الإشراف والتقويم العلمي

دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الأكاديمي للكلية والمعاهد

الجامعة : واسط

الكلية/ المعهد: كلية علوم الحاسوب وتكنولوجيا المعلومات

القسم العلمي : الأمن السيبراني

تاريخ ملء الملف : 2026-3-1

التوقيع :
اسم المعاون العلمي : ٢٠١٠ د. محمد هادي
التاريخ : ٢٠٢٦/٢/١

التوقيع :
الاستاذ المساعد الدكتور
اسم رئيس القسم : رياض زهير توفيق
التاريخ : رئيس قسم الأمن السيبراني
٢٠٢٦/٢/١

دقق الملف من قبل : د. محمد هادي

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ : ٢٠٢٦/٣/١

التوقيع

رئيس
٢٠٢٦/٣/١

مصادقة السيد العميد



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	البرمجة المتقدمة Advanced Programming		Module Delivery
Module Type	Core learning activity (C)		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CYBS111		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Cyber Security	College	CSIT
Module Leader	Riyadh Rahef Nuiaa	e-mail	riyadh@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Muntadher Basim Ali	e-mail	munali@uowasit.edu.iq
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/03/2026	Version Number	1.0

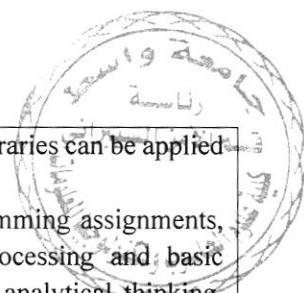
Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Algorithms and structure programing with python	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The main objectives of this course are to: 1. Develop advanced programming skills using Python. 2. Teach modular program design using functions and recursion. 3. Introduce data structures such as lists, nested lists, and dictionaries. 4. Enable students to manipulate strings and structured data efficiently.



	5. Teach file handling techniques including text and binary files. 6. Introduce Python libraries used in data analysis and cybersecurity. 7. Apply programming techniques to cybersecurity-related problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of this course, students will be able to: 1. Design modular Python programs using functions and recursion. 2. Apply parameter passing concepts and understand object references. 3. Use lists and nested lists to manage structured data. 4. Manipulate and process strings for data analysis. 5. Implement dictionaries and nested structures for structured records. 6. Perform file operations including reading, writing, and binary processing. 7. Use Python libraries such as NumPy and Pandas for basic data analysis. 8. Develop small cybersecurity tools such as log analyzers and input validation utilities.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Advanced Functions: Definition of functions, function syntax in Python, parameters and return values, reusable functions, default arguments, keyword arguments, variable-length arguments (*args, **kwargs), lambda functions, definition of recursive functions and examples. [20 hrs] Part B – Data Structures (Lists and Nested Lists): Definition of lists in Python, list operations, accessing and updating list elements, list methods, list comprehension, definition of nested lists (2D lists), iteration over nested lists, examples and applications. [20 hrs] Part C – Dictionaries and String Processing: Definition of dictionaries, key–value pairs, dictionary operations, accessing and updating dictionary elements, definition of strings, string operations, string methods, searching and manipulating text data, examples. [15 hrs] Part D – Object-Oriented Programming: Definition of classes and objects, creating classes in Python, object instantiation, definition of the self keyword, instance variables and methods, constructor __init__, basic OOP concepts such as encapsulation and class organization, examples. [20 hrs] Part E – Python Modules, Libraries, and File Handling: Definition of modules and libraries, importing modules, creating custom modules, use of built-in Python libraries, installing external libraries using pip, examples of common libraries (math, random, datetime, hashlib, re), definition of files, opening files, reading and writing text files, file processing and examples. [20 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' active participation in programming exercises while refining and expanding their logical and computational thinking skills. This will be achieved through structured lectures, interactive discussions, and guided programming demonstrations that explain the core concepts of advanced programming using Python. Students will also be encouraged to practice problem-solving through hands-on coding activities and short programming tasks during the class. In addition, simple practical exercises will be used to help students understand how programming concepts such as

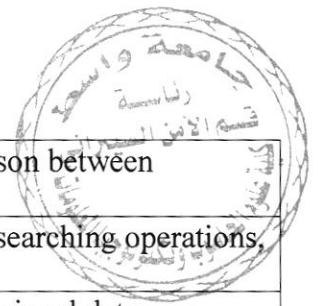


	functions, data structures, object-oriented programming, and Python libraries can be applied to solve real-world problems. The learning process will further be supported through small programming assignments, collaborative exercises, and practical examples related to data processing and basic cybersecurity scenarios. These activities aim to strengthen students' analytical thinking, improve their programming skills, and develop their ability to design simple software solutions independently
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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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
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	1	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	9	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	15	15% (15)	Continuous	All
	Report	0	0% (0)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	15% (15)	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	Advanced Functions: Function design principles, Multiple parameters, Return values, Writing reusable functions
Week 2	Advanced Function Techniques: Default parameters, Keyword arguments, Variable-length arguments (*args, **kwargs), Lambda functions

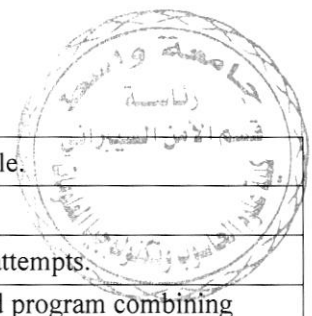


Week 3	Recursion: Recursive algorithms, Base case and recursive case, Comparison between recursive and iterative solutions
Week 4	Lists (Advanced Operations): List manipulation techniques, Sorting and searching operations, List comprehension
Week 5	Nested Lists and Data Organization: Two-dimensional lists, Multi-dimensional data representation, Iteration through nested structures
Week 6	Dictionaries and Structured Data: Dictionary structure and key-value storage, Dictionary operations and methods, Managing structured information
Week 7	String Processing: Advanced string manipulation, Pattern searching, Splitting and formatting text
Week 8	Introduction to Object-Oriented Programming: Classes and objects, Creating classes, Object instantiation
Week 9	Midterm Exam
Week 10	The self Keyword and Class Methods: Meaning and role of self, Instance variables, Instance methods, Constructor method <code>__init__()</code>
Week 11	OOP Concepts: Encapsulation, Class attributes vs instance attributes, Interaction between methods
Week 12	Python Modules and Libraries: Importing modules, Creating custom modules, Using built-in libraries
Week 13	Working with External Libraries: Installing libraries using pip, Using external libraries in Python programs
Week 14	File Handling: Reading and writing text files, Processing log files, File operations and management
Week 15	Final Mini Project: Students develop a small Python project that combines the concepts learned in the course.

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Functions Practice :Write functions with parameters and return values., Create a function to validate a username and password., Write a function to check password strength.
Week 2	Lab 2: Advanced Functions: Implement functions with default arguments., Use keyword arguments., Write a function using <code>*args</code> .
Week 3	Lab 3: Recursion: Write a recursive function to calculate factorial., Recursive password attempt .counter., Compare recursion with loops
Week 4	Lab 4: Lists (Advanced Operations): Create and manipulate lists., Sorting and searching elements., Using list comprehension
Week 5	Lab 5: Nested Lists: Create 2D lists., Iterate using nested loops., Represent tabular data.
Week 6	Lab 6: Dictionaries: Create dictionaries., Access and modify dictionary values., Iterate through key-value pairs.
Week 7	Lab 7: String Processing: String manipulation functions., Splitting and joining text., Searching within strings.
Week 8	Lab 8: Introduction to OOP: Create a simple class., Instantiate objects., Access attributes.
Week 9	Lab 9: Midterm Exam
Week 10	Lab 10: Class Methods and self: Define instance variables., Implement class methods., Use constructors.
Week 11	Lab 11: OOP Applications: Implement encapsulation concepts., Design a small security system class.



Week 12	Lab 12: Python Modules: Import and use Python modules., Write a custom module.
Week 13	Lab 13: External Libraries: Install libraries using pip., Use external libraries.
Week 14	Lab 14: File Handling: Read and write text files., Process log files., Count login attempts.
Week 15	Lab 15: Final Mini Lab Project: Students implement a small cybersecurity-related program combining concepts learned during the semester.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Python Crash Course, 3rd Edition: A Hands-On, Project-Based Introduction to Programming. Matthes, E. (2023)	No
Recommended Texts	Sweigart, A. (2019). Automate the Boring Stuff with Python (2nd ed.) . No Starch Press. Seitz, J. (2021). Black Hat Python: Python Programming for Hackers and Pentesters (2nd ed.) . No Starch Press. Ramalho, L. (2022). Fluent Python (2nd ed.) . O'Reilly Media.	No
Websites	https://docs.python.org/ https://www.geeksforgeeks.org/python-programming-language	

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	مبادئ الامن السيبراني Cyber security principles		Module Delivery
Module Type	Core learning activity (C)		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CYBS112		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Cyber security	College	CSIT
Module Leader	Osamah Adil Raheem	e-mail	oalmusawi@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Muntadher Basim Ali	e-mail	munali@uowasit.edu.iq
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/03/2026	Version Number	1.0

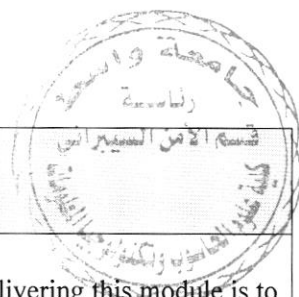
Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents



أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. The roles and influences of governments, commercial and other organizations, citizens and criminals in cyber security affairs. 2. Issues surrounding privacy and anonymity 3. The importance of taking a multi-disciplinary approach to cyber security 4. The potentialities and challenges of emerging block chain technology to enhance inter-organization trust and data/processing integrity This is the basic subject for all programs. 5. The cyber threat landscape, both in terms of recent emergent issues and those issues which recur over time 6. General principles and strategies that can be applied to systems to make them more robust to attack 7. Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. General principles and strategies that can be applied to systems to make them more robust to attack
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Protect and defend computer systems and networks from cybersecurity attacks. ... 2- Diagnose and investigate cybersecurity events or crimes related to computer systems and digital evidence. ... 3- Effectively communicate in a professional setting to address information security issues.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A –:</u> Introduction to Cyber security and Security Fundamentals Overview of cybersecurity and its importance Basic security concepts and principles Threat modeling, [20 hrs] <u>Part B –</u> Network Security Network security fundamentals, including firewalls, intrusion detection, and prevention systems Encryption and decryption techniques Virtual Private Networks (VPNs) [20 hrs] <u>Part C –</u> Cryptography Access Control and Authentication Security Management and Risk Assessment [15 hrs] <u>Part D- structures:</u> Definition of structures , read structures , write structures, examples, Definition of nested structure , examples [20 hrs] <u>Part E -</u> Web Security and Applications Mobile Security, Cloud Security <u>Part F- Incident Response and Recovery</u> Incident response planning and management, Disaster recovery and business continuity planning, Cyber security incident investigations



Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

Type something like: 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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	8.5
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	9	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	15	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 Cyber Security (Overview, Definitions, and Terminology)
Week 2	Cyber Threats, Attacks, and Actors (Types and Examples)
Week 3	Cyber security Risk Management (Identification, Assessment, and Control)
Week 4	Cyber Defense Strategies (Prevention, Detection, and Response)
Week 5	Cryptography (Principles, Techniques, and Applications)
Week 6	Cybercrime Investigations and Forensics (Tools, Procedures, and Techniques)
Week 7	Network Security (Protocols, Devices, and Services)
Week 8	Midterm Exam
Week 9	Operating System Security (Threats, Vulnerabilities, and Patches)
Week 10	Web Security (Threats, Configurations, and Best Practices)
Week 11	Cloud Security (Deployment Models, Risks, and Controls)
Week 12	Mobile Security (Threats, Platform, and App Security)
Week 13	Social Engineering (Phishing, Scams, and Deception)
Week 14	Ethics and Legal Issues in Cybersecurity (Privacy, Intellectual Property, and Liability)
Week 15	Emerging Trends in Cybersecurity (Artificial Intelligence, Internet of Things, and Blockchain)

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Cybersecurity Lab Environment: Introduction to lab rules and environment, Overview of cybersecurity laboratory tools, Introduction to virtualization concepts
Week 2	Installing Virtualization Software: Installing VMware Workstation or VirtualBox, Creating a virtual machine
Week 3	Installing Ubuntu Linux: Linux operating systems overview, Ubuntu installation
Week 4	Linux Interface and Basic Navigation: Desktop environment, Terminal basics
Week 5	Linux File Management: File and directory operations
Week 6	Viewing and Editing Files: Text file manipulation
Week 7	Midterm Exam
Week 8	Linux User Management: Users and groups
Week 9	Linux Permissions and Security: File permissions, Ownership
Week 10	Installing Kali Linux: Introduction to Kali Linux, Installation on virtual machine
Week 11	Kali Linux Interface and Tools: Kali environment, Security tool categories
Week 12	Network Information Tools: Basic networking commands
Week 13	Basic Network Scanning: Introduction to network scanning



Week 14	Password and Hash Tools: Introduction to hashing and password security
Week 15	Final Practical Exercise: Students perform a small lab task combining topics

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Graham, J., Howard, R. and Olson, R. (2011). <i>Cyber Security Essentials</i> . CRC Press 2. Andress, J. (2013). <i>Cyber Warfare: Techniques, Tactics and Tools for Security Practitioners</i> . Syngress. 3. Clarke, R.A. (2012). <i>Cyber War: The Next Threat to National Security and What to Do about it</i> . ECCO Press.	No
Recommended Texts		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
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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

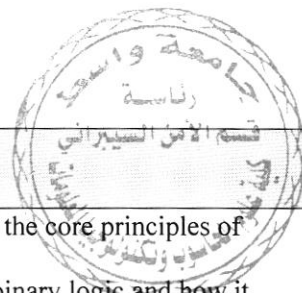
نموذج وصف المادة الدراسية



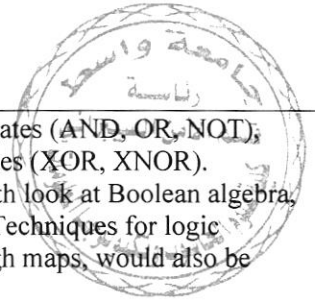
Module Information			
معلومات المادة الدراسية			
Module Title	اساسيات التصميم المنطقي Logic Design Fundamentals		Module Delivery
Module Type	Core learning activity (C)		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CYBS113		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Cyber security	College	CSIT
Module Leader	Saif Hameed Abbood	e-mail	saif.ha@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Ali Kareem Jabbar	e-mail	aal_kinany@uowasit.edu.iq
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/03/2026	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. Understanding Digital Systems: Learn and understand the core principles of digital systems and how they function. 2. Binary Logic Mastery: Gain a clear understanding of binary logic and how it forms the basis for digital computing and design. 3. Comprehension of Logic Gates: Understand the functioning of basic logic gates (AND, OR, NOT) and more complex gates (NAND, NOR, XOR, XNOR), as well as how to combine these gates to create digital circuits. 4. Boolean Algebra Proficiency: Develop a strong understanding of Boolean algebra, including how to simplify Boolean expressions and how these expressions are used in logic design. 5. Sequential and Combinational Logic: Learn the difference between sequential and combinational logic, and how to design circuits using each type of logic. 6. Logic Minimization Techniques: Understand and apply logic minimization techniques, such as Karnaugh maps and Quine-McCluskey method, to simplify logic designs. 7. Design and Analysis: Gain the ability to design and analyze various types of digital circuits, including adders, multiplexers, decoders, memory units, and more. 8. Understanding of Flip Flops and Memory Elements: Develop a comprehension of various types of flip-flops and memory elements, and understand their use in creating larger systems such as registers and counters. 9. Problem-Solving Skills: Enhance problem-solving skills, critical thinking, and creativity in the context of digital logic design.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding Fundamental Concepts: The students will have a firm grasp of binary systems, digital signals, logic gates, and Boolean algebra. 2. Proficiency in Logic Minimization Techniques: Students will know how to use Karnaugh maps and Quine-McCluskey method to simplify logic circuits. 3. Hands-On Experience: Students will gain practical experience in implementing logic circuits, either physically with electronic components or virtually using design and simulation software. 4. Knowledge of Different Logic Families: Students will learn about different logic families (like TTL, CMOS), their characteristics, and the advantages and disadvantages of each. 5. Design and Analysis of Logic Circuits: Students will be able to design and analyze combinational and sequential circuits. This includes basic gates, adders, multiplexers, decoders, and other digital circuits. 6. Problem-Solving Skills: Students will develop strong problem-solving skills, allowing them to tackle complex logic design problems effectively. 7. Understanding of Memory Elements: Students will understand the operation of different types of flip-flops, latches, and other memory elements. They will also know how these elements are used to design registers, counters, and more complex memory structures. 8. Ability to Work in Teams: If collaborative projects are included in the course, students will gain experience in working as part of a team to design and implement complex logic circuits. 9. Relating Theory to Practice: Students will be able to relate theoretical concepts to practical real-world applications, recognizing the significance and utility of logic design in various technological applications. 10. Understanding of Timing Issues: Students will understand timing issues in digital circuits, including setup and hold times for flip-flops, and how to design circuits that meet timing requirements.
Indicative Contents المحتويات الإرشادية	1. Introduction to Digital Systems: Discussion of what digital systems are and how they function, including basics of analog vs digital signals. 2. Binary Systems and Codes: Understanding of binary numbers, binary arithmetic, binary codes like Gray Code, BCD, etc.



	3. Logic Gates and Circuits: Introduction to basic logic gates (AND, OR, NOT), universal gates (NAND, NOR), and more complex gates (XOR, XNOR). 4. Boolean Algebra and Logic Simplification: An in-depth look at Boolean algebra, its laws and rules, and its application to logic design. Techniques for logic simplification, such as De Morgan's laws and Karnaugh maps, would also be included. 5. Combinational Logic Circuits: Study of combinational logic design, including adders, subtractors, multiplexers, decoders, and encoders. 6. Sequential Logic Circuits: Discussion of sequential logic, flip-flops, latches, counters, and registers. 7. Memory and Programmable Logic Devices: Examination of memory units, memory organization, and devices like Read-Only Memory (ROM), Programmable Read-Only Memory (PROM), and Programmable Logic Arrays (PLA). 8. Logic Families: Introduction to different logic families like TTL, ECL, and CMOS, and comparison of their characteristics and applications. 9. Finite State Machines: Explanation of the concept of state, state diagrams, state tables, and how to design finite state machines. 10. Introduction to VHDL/Verilog: Basics of hardware description languages, their syntax, and semantics, and how they are used to design and test digital circuits.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Learning and teaching logic design, particularly digital logic design, requires a deep understanding of binary systems, gates, Boolean algebra, and much more. Here are some effective strategies to facilitate learning and teaching of this subject. 2. Using Visual Tools: Visual representations can greatly enhance understanding in this field. Using diagrams to explain concepts such as truth tables, Karnaugh maps, and logic gates. Software like Circuit maker can be used to virtually design and test digital circuits. 3. Starting with basic binary arithmetic, explaining the importance of 0s and 1s in digital logic design. Moving to basic logic gates (AND, OR, NOT), and gradually introduce more complex ones (NAND, NOR, XOR, XNOR). 4. Utilizing Hands-On Learning: Incorporating practical exercises whenever possible. This could involve using breadboards and basic electronic components or using software to design and simulate circuits. 5. Learning and teaching logic design, particularly digital logic design, requires a deep understanding of binary systems, gates, Boolean algebra, and much more. Here are some effective strategies to facilitate learning and teaching of this subject. 6. Using Visual Tools: Visual representations can greatly enhance understanding in this field. Using diagrams to explain concepts such as truth tables, Karnaugh maps, and logic gates. Software like Circuit maker can be used to virtually design and test digital circuits. 7. Starting with basic binary arithmetic, explaining the importance of 0s and 1s in digital logic design. Moving to basic logic gates (AND, OR, NOT), and gradually introduce more complex ones (NAND, NOR, XOR, XNOR). 8. Utilizing Hands-On Learning: Incorporating practical exercises whenever possible. This could involve using breadboards and basic electronic components or using software to design and simulate circuits.



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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
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	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	Numbering systems_1 (Decimal, Binary, Octal and Hexadecimal)
Week 2	Base conversion (Decimal, Binary, Octal and Hexadecimal, Gray, BCD, EX-3, 2421))
Week 3	Arithmetic Operation (Addition, Subtraction: Normal, 1's complement, 2's complement)
Week 4	Arithmetic Operation (Multiplication, Division)
Week 5	Basic logic gates (AND, OR, NOT, NAND, NOR, EXOR, XNOR)
Week 6	Logic circuit simplification using Boolean algebra
Week 7	Logic circuit simplification using Karnaugh map
Week 8	Digital logic design circuits
Week 9	Midterm exam
Week 10	Arithmetic circuits (Adders, Subtractors, Comparator)
Week 11	Decoders, Encoders, Multiplexers, De-Multiplexers



Week 12	Latches and Flip Flops
Week 13	Asynchronous counters, synchronous counters
Week 14	Shift registers (PIPO,SIPO,PISO and SISO)
Week 15	Memory (RAM and ROM)

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Application of Basic logic gates (AND, OR, NOT) and their Truth Table, Boolean Expression, Function
Week 2	Application of Boolean Algebra
Week 3	Application of De-Morgan theorem
Week 4	Application of Combinational Circuits
Week 5	Application of Combinational Circuits simplification using Boolean Algebra
Week 6	Application of Combinational Circuits simplification using Karnaugh map
Week 7	Application of Digital logic design circuits
Week 8	Application of Binary adders (Half-Full adders, Half-Full Subtractor)
Week 9	Application of Decoder, Encoder, Multiplexer, De-Multiplexer
Week 10	Application of Sequential circuits (SR_latch and D_latch)
Week 11	Application of Master-slave flip-flop(SR , JK, D and T)
Week 12	Application of Counters and Registers
Week 13	Application of Memory (Static RAM)
Week 14	Application of Memory (ROM)
Week 15	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	M. M. Mano,2016, "Digital Design", Prentice Hall	
Recommended Texts	Thomas I. Floyd, 2006, "Digital Fundamentals", Prentice Hall	
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	النظرية الاحتمالية Computational Theory		Module Delivery
Module Type	Basic learning activities (B)		☒ Theory ☒ Lecture Lab ☒ Tutorial Practical Seminar
Module Code	CYBS114		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	2
Administering Department	Cyber Security	College	CSIT
Module Leader	Maryam Jawad Kadhim	e-mail	mjawad@uowasit.edu.iq
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

Module Objectives أهداف المادة الدراسية	1. The theory of computability aims to teach the student to use algebraic laws. 2. Laws of algebra of propositions 3. In addition to the study of quantifiers 4. Study different groups, theories and schemes, in addition to studying the type of grammar. 5. the study of DFA and NDFA 6. State deletion algorithms and many topics so that the student can solve issues related to computational theory with ease and clarity.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. In theoretical computer science and mathematics, computational theory is the branch that deals with the effectiveness of solving problems through a computational model using an algorithm. 2. We divide this field into three main sections: autonomy theory and languages, computational theory, and computational complexity theory. 3. Because it is easy to form, it can be analyzed and used to prove results, 4. Because it represents what many consider to be the most powerful 'logical' computational model possible. 5. The possibility of an infinite amount of memory seems to be an unattainable advantage, but any problem decided to be solved by means of a Turing machine will always require only a finite amount of memory. So in principle, 6. Any problem that can (decided) be solved by a Turing machine can therefore be solved by a computer with a limited amount of memory. 7. Computational theory can be considered the creation of models of all kinds in the field of computer science. Therefore, mathematics and logic are used.
Indicative Contents المحتويات الإرشادية	The aim of Theory of Computability is to teach the student to use algebraic laws in solving problems, in addition to studying quantifiers, studying groups, theories, and different schemes, in addition to studying the type of grammar, studying DFA and NDFA, state deletion algorithms, and many other topics so that the student can solve problems related to theory. Calculation with ease and clarity.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Computability theory deals primarily with the question of the extent to which a problem is solvable on a computer. Computational theory relies mostly on the results of the stopping problem. Computational theory in computer science studies the possibility of efficiently solving problems by means of a computer and studies what a computer can calculate at present and the possibility of its development in the future.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5.2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	
	Assignments	2	10% (10)	2 and 12	
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	2hr	10% (10)	7	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Theory of computability
Week 2	grammar
Week 3	Type of grammar
Week 4	Quiz
Week 5	Derivation trees for context free grammar
Week 6	Simplification of context free grammar
Week 7	Finite automata and their language
Week 8	Type of finite automata
Week 9	Midterm exam
Week 10	Context free grammer



Week 11	The equivalence of DFA and NDFA
Week 12	Regular expression (RE)
Week 13	Equivalence of FA and (RE)
Week 14	Context sensitive grammar
Week 15	How to solve laws of relations
Week 16	Other approaches to computability

Delivery Plan (Weekly Lab. Syllabus) N/A

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Discrete Mathematics and Its Applications_7th_Edition - Introduction to Languages and the Theory of Computation.	Yes
Recommended Texts	Theory and Applications of Computability, In cooperation with the association Computability in Europe.	No
Websites	https://bookauthority.org/books/best-computability-books	

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	(2) هياكل متقطعة (2) Discrete structures (2)		Module Delivery
Module Type	Basic learning activities (B)		☒ Theory ☒ Lecture Lab ☒ Tutorial Practical Seminar
Module Code	CYBS115		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	2
Administering Department	Cyber Security	College	CSIT
Module Leader	Inas Salman Obaid	e-mail	inas@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	M.Sc.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	E-mail
Scientific Committee Approval Date	01/3/2026	Version Number	1

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

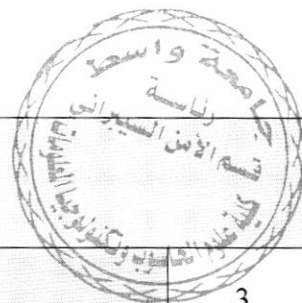
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	7. The course aims to study discrete structures in terms of the use of algebraic laws. 8. Studying the Graphs and Trees 9. To reach an easy and clear way for students 10. To solve all material issues related to discontinuous structures. 11. In addition to studying quantifiers and predicates logic 12. Studying the different groups, theories and schemes so that the student can solve the duties required of him and the exercises with simplicity, ease and clarity.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	8. Learn how to solve algebraic laws, groups and Venn diagrams correctly, efficiently and clearly 9. The subjects studied in discrete structures are either definite or indefinite. The term finite structures is sometimes used to refer to fields of discrete mathematics that deal with finite groups, 10. especially in fields of business relevance. 11. Discrete mathematical structures have gained wide importance over the recent decades due to their wide applications in computer science. 12. Discrete mathematics terms and notations are useful for studying and expressing problems of objects in computer programming and algorithms. 13. Some branches of discrete mathematics are also useful in studying some business and economic issues.
Indicative Contents المحتويات الإرشادية	The course aims to study discontinuous structures in terms of the use of algebraic laws, diagrams and shapes to reach an easy and clear way for students to solve all issues related to the subject of discontinuous structures. In addition to studying quantifiers and predicates logic and studying different groups, theories and schemes so that the student can solve the duties required of him and the exercises with simplicity, ease and clarity.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Discrete structures is the study of mathematical structures that are essentially discontinuous, in the sense that they do not require the presence of the adjective of communication and do not require it in order to study this subject. Most of the topics studied in discrete mathematics are related to countable sets (a completely different concept from finite sets), an example of which is the set of integers. Discrete mathematics has gained wide importance in recent decades due to its wide applications in computer science. Discrete mathematics terms and notations are useful for studying and expressing objects in computer programming and algorithms. Some branches of discrete mathematics are also useful in studying some business and economic issues.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO : 1,4
	Assignments	2	10% (10)	2 and 12	LO : 1,2,5
	Projects				
	Report	2	20% (20)	6,12	1,2,3,4,5,6
Summative assessment	Midterm Exam	2hr	10% (10)	7	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Definition of proofs
Week 2	Relations
Week 3	Functions .Domain and codomain of the function ,Range of the function
Week 4	Geometrical Characterization of functions, Functions types, composition functions
Week 5	Classification of functions , Graph of function
Week 6	Sequences of sets
Week 7	Graph theory , The types of graphs
Week 8	Some Special Simple Graphs , Isomorphism and Isomorphic of graph
Week 9	Midterm exam



Week 10	Kinds of graphs, Representing Graphs
Week 11	Introduction to trees
Week 12	Minimum Spanning Trees, Labeled graphs , trees- rooted tree
Week 13	Tree traversal ,Traversal Algorithms , Infix, Prefix, and Postfix Notation
Week 14	review of previous subjects and Mid-semester exam
Week 15	Finite state machines (FSM)
Week 16	Introduction to algebra structures , Semi group

Delivery Plan (Weekly Lab. Syllabus) N/A

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	N.A

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Discrete Mathematics and Its Applications_7th_Edition	Yes
Recommended Texts	Foreman, M., Akihiro Kanamori, eds. Handbook of Set Theory. 3 vols., 2010. Each chapter surveys some aspect of contemporary research in set theory. Does not cover established elementary set theory.	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

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MODULE DESCRIPTION FORM

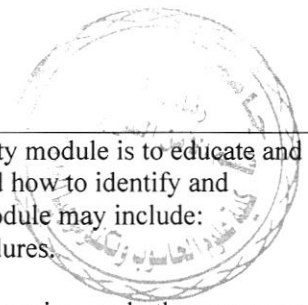
نموذج وصف المادة الدراسية



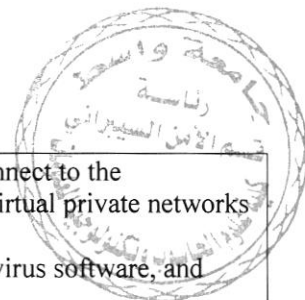
Module Information			
معلومات المادة الدراسية			
Module Title	التوعية والتدريب الامن Awareness and Training for Security		Module Delivery
Module Type	Basic learning activities (B)		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CYBS116		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	2
Administering Department	Cyber security	College	CSIT
Module Leader	Ilyas Khudhair Yalwi	e-mail	ilyas@uowasit.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	M.S.c
Module Tutor		e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/3/2026	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 primary objective of an Awareness and Training for Security module is to educate and train employees on the importance of security best practices and how to identify and respond to potential security threats. Other objectives of this module may include: 1. Understanding the organization's security policies and procedures. 2. Understanding how to identify and report security incidents. 3. Understanding the risks associated with phishing, social engineering, and other common cyber attacks. 4. Learning how to create strong passwords and manage them securely. 5. Understanding the importance of data privacy and how to handle sensitive information securely. 6. Learning how to securely connect to the organization's network from remote locations. 7. Understanding the importance of regular software updates and patching. 8. Learning how to use security tools such as firewalls, antivirus software, and intrusion detection systems. 9. Understanding the basics of cryptography and encryption. 10. Understanding the importance of incident response and how to respond to a security incident. Overall, the main objective of an Awareness and Training for Security module is to create a security-aware culture within the organization and empower employees to be an active part of the organization's security strategy.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes of an Awareness and Training for Security module will vary depending on the specific goals and objectives of the module. However, here are some common learning outcomes that can be expected from such a module: 1. Employees will be able to identify and report potential security incidents. 2. Employees will understand the risks associated with common cyber attacks and know how to protect against them. 3. Employees will be able to create strong passwords and manage them securely. 4. Employees will understand the importance of data privacy and how to handle sensitive information securely. 5. Employees will be able to securely connect to the organization's network from remote locations. 6. Employees will understand the importance of regular software updates and patching. 7. Employees will be able to use security tools such as firewalls, antivirus software, and intrusion detection systems. 8. Employees will understand the basics of cryptography and encryption. 9. Employees will understand the importance of incident response and know how to respond to a security incident. 10. Employees will be aware of the organization's security policies and procedures and understand their role in maintaining a secure environment. Overall, the learning outcomes of an Awareness and Training for Security module should help to create a culture of security awareness within the organization and empower employees to take an active role in protecting the organization's assets and sensitive information.
Indicative Contents المحتويات الإرشادية	The contents of an Awareness and Training for Security module will vary depending on the specific needs of the organization. However, here are some common topics that may be covered: 1. The importance of security awareness: This may include an introduction to the risks associated with cyber attacks and the importance of maintaining a secure environment. 2. Security policies and procedures: Employees will learn about the organization's security policies and procedures, including access controls, password policies, and incident response procedures. 3. Phishing and social engineering: Employees will learn how to identify and respond to phishing emails, phone calls, and other social engineering attacks. 4. Password security: This may include information on creating strong passwords, using password managers, and avoiding password reuse. 5. Data privacy: Employees will learn about the importance of protecting sensitive information, including personal data and confidential business information.



	6. Remote access security: Employees will learn how to securely connect to the organization's network from remote locations, including the use of virtual private networks (VPNs). 7. Security tools: This may include an introduction to firewalls, antivirus software, and intrusion detection and prevention systems. 8. Cryptography and encryption: Employees will learn about the basics of cryptography and encryption and how they are used to protect sensitive information. 9. Incident response: Employees will learn about the importance of incident response and how to respond to a security incident. 10. Security best practices: This may include information on regular software updates and patching, secure web browsing, safe email practices, and mobile device security. Overall, the contents of an Awareness and Training for Security module should provide employees with a comprehensive understanding of security risks and best practices and empower them to take an active role in maintaining a secure environment.
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Effective strategies of Awareness and Training for Security can help to create a security-aware culture within the organization and empower employees to take an active role in maintaining a secure environment. Here are some common strategies that can be employed: 1. Regular training sessions: Conducting regular training sessions on security best practices can help to keep security awareness at the forefront of employees' minds. 2. Interactive training materials: Using interactive training materials such as quizzes, games, and simulations can help to engage employees and increase the effectiveness of the training. 3. Tailored training: Tailoring training programs to specific job roles or departments can help to ensure that employees receive training that is relevant to their responsibilities. 4. Senior management support: Gaining the support of senior management can help to emphasize the importance of security awareness within the organization and encourage employees to take it seriously. 5. Continuous reinforcement: Reinforcing security best practices through regular reminders and updates can help to keep security awareness top of mind. 6. Benchmarking: Regularly benchmarking the effectiveness of security awareness training programs can help to identify areas for improvement and ensure that training programs remain up-to-date. 7. Phishing simulations: Conducting phishing simulations can help to educate employees on how to identify and respond to phishing attacks. 8. Incentives: Providing incentives for employees who demonstrate good security practices can help to encourage security awareness and promote a security-aware culture. 9. Multi-lingual training: Providing training materials in multiple languages can help to ensure that all employees, regardless of their language background, receive the necessary training. Overall, the strategies of Awareness and Training for Security should be tailored to the specific needs of the organization and its employees, and regularly updated to remain effective and relevant.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	32	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	18	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب 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.		0% (0)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	20% (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	Advanced Security Awareness Training Techniques
Week 2	Interactive training methods (e.g., gamification, simulations)
Week 3	Security awareness for remote and distributed teams
Week 4	Measuring and evaluating the effectiveness of security training
Week 5	Emerging Threats Awareness
Week 6	Exploring emerging cybersecurity threats
Week 7	Ransomware and malware awareness
Week 8	Advanced persistent threats (APTs) and targeted attacks
Week 9	Midterm exam
Week 10	Cloud Security Awareness



Week 11	Understanding cloud computing security challenges
Week 12	Security considerations for cloud services and deployments
Week 13	Cloud security awareness training
Week 14	Mobile Device Security Awareness
Week 15	Mobile device security risks and vulnerabilities
Week 16	Best practices for securing mobile devices, Mobile device security awareness training

Delivery Plan (Weekly Lab. Syllabus) N/A

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"The Art of Human Hacking" by Christopher Hadnagy.	
Recommended Texts	"Social Engineering: The Art of Human Hacking" by Christopher Hadnagy.	
Websites	SANS Security Awareness: www.sans.org/security-awareness : SANS Institute offers a comprehensive security awareness training program that covers a wide range of topics, including phishing awareness, password security, social engineering, and safe online behavior. Their website provides access to free resources, blog articles, and information on training courses and certifications.	

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	(1) لغة عربية Arabic Language		Module Delivery
Module Type	Support or related learning activity (S)		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WU01		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	2
Administering Department	Cyber Security	College	CSIT
Module Leader	Zahraa Raheem Masir	e-mail	zahraa.masir@uowasit.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/03/2026	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

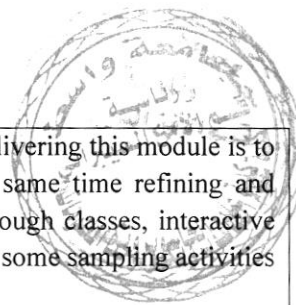
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. بيان أهمية دراسة اللغة العربية 2. وتعلم القراءة الصحيحة والكتابة السليمة
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	أن ينشأ الطالب على حب اللغة العربية ، والتعرف على مواطن الجمال في اللغة العربية وآدابها ، فضلاً عن تعريف الطالب بألفاظ اللغة العربية الصحيحة وتراكيبها وأساليبها السليمة بطريقة مشوقة وجذابة. وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتصال مع الآخرين مع اتقان جودة الالتقاء وحسن التعبير . اللغة العربية لغة البيان، التي تحمل العديد من العبارات والدلالات التي تميزها عن اللغات الأخرى، فهي لسان العقل البليغ، وحكمة اللسان العاجز، فاللغة العربية هي لغة الضاد حيث أنها مستودع قوي لجميع مصطلحات العالم تضم بداخلها العديد والعديد من المعاني، حيث أن سعة اللغة العربية شاسعة وتحمل الكثير من محاسن الألفاظ، واللسان المعرب هو الأفضل والأسمى دائماً، فالقرآن عربي والحضارة عربية، وهي اللغة الغنية التي تصل إلى مستوى الكمال
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - أهمية اللغة [15 hrs] نشأة علوم اللغة العربية Part B-الانفعال [20 hrs] الفعل الماضي، الفعل المضارع، فعل الامر، الافعال اللازمة ، والافعال المتعدية لمفعول ، الافعال المتعدية لمفعولين Part c - المبتدأ والخبر اعراب المبتدأ والخبر، دخول كان واخواتها على المبتدأ والخبر ، دخول ان واخواتها على المبتدأ والخبر [20 hrs] Part D-الترقيم والاختطاء الشائعة [5 hrs] Part E-المنصوبات المفعول به، المفعول لأجله، المفعول المطلق [10hrs] Part F قواعد العدد [10 hrs] التانيث والتذكير في العدد والجمع والمثنى في العدد Part G نص شعري للجواهري [5 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	
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	Type something like: 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 types of simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	32	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	18	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب 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.	0	0% (0)	Continuous	All
	Report	2	20% (20)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	1hr	10% (10)	7	LO #1 - #7
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	أهمية اللغة العربية ونشأة علوم اللغة العربية
Week 2	الأفعال
Week 3	المبتدأ والخبر



Week 4	النواسخ : كان واخواتها
Week 5	ان واخواتها
Week 6	علامات الترقيم
Week 7	أخطاء لغوية شائعة
Week 8	المنصوبات
Week 9	المفعول به
Week 10	المفعول لأجله
Week 11	المفعول لأجله
Week 12	المفعول المطلق
Week 13	قواعد العدد
Week 14	قواعد العدد
Week 15	نص شعري للجواهري

Delivery Plan (Weekly Lab. Syllabus) N/A

المنهاج الاسبوعي للمختبر

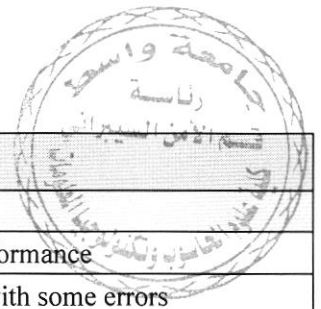
	Material Covered
Week 1	None

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مجموعة من المؤلفين /اللغة العربية لأقسام غير الاختصاص	Yes
Recommended Texts	كتب النحو /كتب الاملاء/المنهاج في القواعد والإعراب	No
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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Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
One		1	CYBS101	Programming Fundamentals	اساسيات البرمجة	English	2	2			1		3	63	87	150	6	C			
		2	CYBS102	Computer Organization	تنظيم الحاسوب	English	2	2					3	48	52	100	4	C			
		3	CYBS103	Information Security Principles	مبادئ امنية المعلومات	English	2	2					3	63	87	150	6	B			
		4	CYBS104	Mathematics	رياضيات	English	3						3	63	87	150	6	B			
		5	CYBS105	Discrete Structures (1)	هياكل منطعة (1)	English	2				1		3	48	52	100	4	B			
		6	WU04	Human Rights and Democracy	حقوق الانسان والديمقراطية	Arabic	2						2	32	18	50	2	S			
		7	WU02	English Language (1)	اللغة الانكليزية (1)	English	2						2	32	18	50	2	S			
Total							15	0	6	0	3	0	19	317	401	750	30.00				
UGI	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Two		1	CYBS111	Advanced Programming	البرمجة المتقدمة	English	2				1		3	63	87	150	6	C			
		2	CYBS112	cyber security principles	مبادئ الامن السيبراني	English	2		2				3	63	87	150	6	C			
		3	CYBS113	Logic Design Fundamentals	اساسيات التصميم المنطقي	English	2		2				3	63	87	150	6	C			
		4	CYBS114	Computational Theory	النظرية الحاسوبية	English	2						3	48	52	100	4	B			
		5	CYBS115	Discrete Structures (2)	هياكل منطعة (2)	English	3				1		3	48	52	100	4	B			
		6	CYBS116	Awareness and Training for Security	التوعية والتدريب الامن	English	2						3	32	18	50	2	B			
		7	WU01	Arabic Language (1)	لغة عربية (1)	Arabic	2						2	32	18	50	2	S			
Total							15	0	6	0	2	0	20	349	401	750	30.00				
UGII	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Three		1	CYBS211	Object-Oriented programming(1)	البرمجة كائنية (1)	English	2		2				3	63	87	150	6	C			
		2	CYBS212	Database Basics	اساسيات قواعد بيانات	English	2		2				3	63	37	100	4	B			
		3	CYBS215	Numerical Methods	طرق عددية	English	2		2				3	63	87	150	4	B			
		4	CYBS213	Modern cypher Systems (1)	نظم تشفير حديثة(1)	English	2		2				3	63	37	100	6	C			
		5	CYBS214	Data Structure	هياكل بيانات	English	2		2				3	63	87	150	6	C			
		6	UOW09	Arabic Language(2)	لغة عربية(2)	Arabic	2						2	32	18	50	2	S			
		7	UOW08	Crimes of the defunct Baath Party	جرائم حزب البعث البائد	Arabic	2						2	17	33	50	2	S			
Total							13	0	10	0	0	0	19	364	366	750	30.00				
UGIII	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Four		1	CYBS221	Object-Oriented programming(2)	البرمجة كائنية (2)	English	2		2				3	63	87	150	6	C			
		2	CYBS222	Cyber Security tools	أدوات الامن السيبراني	English	2		2				3	63	87	150	6	C			
		3	CYBS223	Distributed Databases	قواعد البيانات الموزعة	English	2		2				3	63	87	150	6	C			
		4	CYBS226	Statistics and Probability	احصاء و احتمالية	English	2				1		3	48	52	90	2	B			
		5	CYBS224	Software Security	امن البرمجيات	English	2						2	32	18	100	4	C			
		6	CYBS225	Cryptography (2)	لتشفير(2)	English	2		2				3	63	37	100	4	C			
		7	UOW26	English Language (2)	اللغة الانكليزية (2)	English	2						2	32	18	50	2	S			
Total							12	0	8	0	1	0	17	332	366	750	30.00				
UGIV	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Five		1	CYBS311	Coding and information Theory	الترميز ونظرية المعلومات	English	2		2			1	3	48	77	50	2	C			
		2	CYBS312	Cloud Computing principles	مبادئ الحوسبة السحابية	English	2		2				3	63	62	150	6	C			
		3	CYBS313	Computer Networks	شبكات الحاسوب	English	2		2				3	63	62	150	6	C			
		4	CYBS314	Malicious Code analysis	تحليل الشفرات الخبيثة	English	2		2				3	63	62	150	6	C			
		5	CYBS315	Artificial Intelligence	ذكاء اصطناعي	English	2		2				3	63	62	150	6	C			
		6	CYBS316	Computer Architecture	معمارية الحاسوب	English	2				1		3	48	77	100	4	C			
		Total							12	0	8	0	2	0	16	348	402	750	30.00		
UGIV	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Six		1	CYBS321	Compiler Design	تصميم المترجمات	English	2		2				3	63	62	125	5	C			
		2	CYBS322	Network Security	امن الشبكات	English	2		2				3	63	62	150	6	C			
		3	CYBS323	Database Security	امن قواعد البيانات	English	2		2				3	63	62	150	6	C			
		4	CYBS324	Modeling and simulation	نمذجة ومحاكاة	English	2				1		3	48	77	50	2	C			
		5	CYBS325	Secure Communication Protocols	بروتوكولات الاتصالات الامنة	English	2		2				3	63	62	125	5	C			
		6	CYBS326	Ethical Hacking	القرصنة الأخلاقية	English	2		2				3	63	62	150	6	C			
		Total							12	0	10	0	1	0	18	363	367	750	30.00		
UGIV	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Seven		1	CYBS411	Operating Systems	نظم التشغيل	English	2		2				3	63	62	125	5	C			
		2	CYBS412	Internet of Things Security (IOT)	امن انترنت الأشياء	English	2		2				3	63	37	100	4	C			
		3	CYBS413	Web applications Programming	برمجة تطبيقات ويب	English	2		2				3	63	62	125	5	C			
		4	CYBS414	Electronic Governance Security	امن الحوكمة الالكترونية	English	2				1		3	48	52	100	4	C			
		5	CYBS415	Cloud Computing Security	امن الحوسبة السحابية	English	2		2				3	63	62	125	5	C			
		6	CYBS416	Research Project I	مشروع تخرج ١	English	2				2		1	47	128	175	7	C			
		Total							10	0	8	2	1	1	17	347	403	750	30.00		
UGIV	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)	Exam hr/sem	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite Module(s) Code							
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	hr/sem	hr/sem	hr/sem						
Eight		1	CYBS421	Operating Systems Security	امن نظم التشغيل	English	2		2				3	63	62	125	5	C			
		2	CYBS422	Web applications Security	امن تطبيقات الويب	English	2		2				3	63	62	125	5	C			
		3	CYBS423	Digital Forensics	الأدلة الجنائية الرقمية	English	2		2				3	63	62	125	5	C			
		4	CYBS424	Intelligent Analysis of Security Threats	التحليل الذكي للتهديدات الأمنية	English	2						3	63	37	100	4	C			
		5	CYBS425	Information Risk Management	ادارة مخاطر المعلومات	English	2				1		3	48	52	100	4	C			
		6	CYBS426	Research Project II	مشروع تخرج ٢	English	2				2		1	47	128	175	7	C			
		Total							10	0	8	2	1	1	17	347	403	750	30.00		
Total																	6000	240	Must be 240 ECTS		
Structural	CL	Class Lecture														B	Basic learning activities		SSWL	Student Workload	
red	Lab	Laboratory														G	Core learning activity		SSWL	Structured SWL	
(hr/w)	Pr	Practical Training														S	Support or related learning activity		USSWL	Unstructured SWL	
type	Tut	Tutorial														E	Elective learning activity				
	Lect	Online lecture																			
	Sem	Seminar																			