الوصف الاكاديمي
قسم علوم الامن السيبراني

Al-Turath University
جامعة التراث

College of Sciences
كلية العلوم

Cyber Security Sciences
علوم الامن السيبراني

Republic of Iraq

Ministry of Higher Education and Scientific Research

Al-Turath University

Bachelor

Four years (eight semesters) - 240 ECTS credits - 1 ECTS = 25 hours

Program Curriculum (2023 - 2024)

جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة التراث

بكلوريوس علوم الامن السيبراني

أربع سنوات (ثمانية فصول دراسية) - 240 وحدة اوربية - كل وحدة اوربية = 25 ساعة

المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Level	Semester	No.	Module Code	Module Name	اسم المادة	Language	SSWL (hr/w)							Exam	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite
							CL	Lect	Lab	Pr	Tut	Sm	Cln	hr/sem	hr/sem	hr/sem	hr/sem			
1	ONE	1	CyB 101	Programming Fundamentals I	اساسيات ال ربمجة 1	الانجليزية	2	0	2	0	1	1	0	3	79	96	175	7	C	
		2	CYSP104	Data Security Principles	مبادئ أمن البيانات	الانجليزية	2	2	2	0	0	2	0	3	79	46	125	5	C	
		3	CyB102	Discrete Structures	الهياكل المتقطعة	الانجليزية	2	3	0	0	2	2	0	3	64	61	125	5	C	
		4	CyB 106	Calculus	التفاضل والتكامل	الانجليزية	2	1	0	0	3	3	0	3	64	61	125	5	C	
		5	CyB 103	Computer Organization	تنظيم الحواسيب	الانجليزية	2	1	2	0	0	0	0	3	64	61	125	5	C	
		6	CyB 105	English language 1	لغة انكليزية 1	الانجليزية	2	0	0	0	0	0	0	3	33	42	75	3	B	
						Total	12	7	6	0	6	8	0	18	383	367	750	30		
1	TWO	1																		
		2																		
		3																		
		4																		
		5																		
		6																		
						Total	0	0	0	0	0	0	0	0	0	0	0	0		

Program Catalogue | 2023-2024 | دليل البرنامج الدراسي

Al-Turath University

جامعة التراث

First Cycle – Bachelor's degree (B.Sc.) – Cyber Security Sciences

بكالوريوس علوم - الامن السيبراني

Table of Contents | جدول المحتويات

1. Mission & Vision Statement

Vision Statement

The department's vision for the foreseeable future is to keep pace with the rapid developments in cybersecurity science and its applications in the department's curriculum. The aim is to graduate qualified and competent professionals in the field of cybersecurity who holds both undergraduate and postgraduate degrees. The department strives for excellence and leadership in cybersecurity education, profession and research at the regional and global levels. It also strives to effectively meet the needs of the community and the job market.

Mission Statement

To prepare professionals in the field of cybersecurity capable of leading, designing and developing various projects in both the academic and professional fields. This is achieved by providing an exceptional and high-quality program that focuses on the integration of scientific theories and practical training to promote the development of programs, applications and innovations in scientific research. The aim is to provide the necessary security services to individuals and public/private organizations in Iraq and contribute to the overall development of society.

2. Program Specification

Programme code:	BSc-BIO	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

Cyber-attacks are a serious security issue facing organizations in the information age. Today, all organizations operate with a potential information security risk and will need to implement strategies to protect their information technology (IT) systems and data. Although society has become increasingly reliant upon IT and cloud-based services, cyber security skills and capability are not currently increasing at a comparable rate.

The Iraqi universities takes a prominent role in cyber security provision, with the demand for new talent only set to grow in the future. This growth requires a sustained supply of competent cyber security professionals who have achieved the requisite standards and certification.

The bachelor of Cyber Security program will provide students with a fundamental understanding of how to protect organizations, networks, IT systems and individuals against cyber-attacks and cyber threats. It will prepare them for the possibility of taking professional qualifications in their early career pathway, such as Cisco CCNA; Cisco CCNA Security; and CompTIA Security+.

The bachelor of Cyber Security program has been developed to provide a specific opportunity for students to enter an educational program in an increasingly vital subject area. The program is for those wishing to develop a career as a cyber security professional, or to develop new skill sets that may enable them to consider alternative employment roles within IT services.

Prospective students will be seeking to improve their technical understanding of cyber security, IT services and risk management, and how this relates to the wider business and customer-facing needs for their future employers. During the program students will learn the underpinning areas of software and networked systems as well as developing specialist skills in cyber security, risk and information management.

Students will also learn to use a wide range of cyber security related tools and techniques, alongside technical skills in computer programming, software engineering, cloud and database development.

Qualified cyber security professionals are currently in high demand by business, government and law enforcement agencies across the globe. Graduating students from the program will have gained the fundamental skills and knowledge necessary to quickly adopt the emerging technologies and concepts in this fast-changing field, alongside the professional and business skills, techniques and ways of thinking needed to be able to align technical security requirements with business needs.

3. Program Goals

The Department of Cybersecurity Science aims to keep pace with the rapid developments in the field of cybersecurity on a local and global level. The creation of this specialization is a response to the rapid development of digital transformation processes and the increased rates of electronic attacks as well as the risks of cyber system breaches. Therefore, the specialization aims to prepare a generation equipped with the necessary knowledge and skills to use various tools to detect security breaches and vulnerabilities and to address them by achieving the following educational objectives:

1. Graduates able to encrypt and obfuscate data in various programming languages to enhance the protection of organizations from any intrusion or cybersecurity threats.
2. Enable students to develop information security systems and software for both public and private sector organizations.
3. Apply strategies and technical skills to ensure the protection of data and information.
4. Study the commitment to ethical behavior in information security.
5. Apply the principles of scientific and methodological thinking to solve digital and cybersecurity information security problems and challenges.
6. Master the skills necessary to transition to a specialized phase in computer and information security.

4. Student Learning Outcomes

1. Help the student to develop secure programs and systems.
2. Enable the student to encrypt and analyze the source code of systems.
3. Enable the student to detect intruders in networks or computers as well as protect data and repositories from tampering and infiltration.
4. Helps students to complete simplified projects that demonstrate their understanding as well as applying it practically.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Al-Turath University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

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:				
Number 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.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CyB 101	Programming Fundamentals I	79	96	7	Core	
CyB102	Discrete Structures	64	61	5	Core	
CyB 103	Computer Organization	64	61	5	Core	
CYSP104	Data Security Principles	79	46	5	Core	
CyB 105	English language 1	33	42	3	Basic	
CyB 106	Calculus	64	61	5	Core	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CyB107	Programming Fundamentals II	79	96	7	Core	
CyB 108	Digital Logic Design	79	63	5	Core	
CyB 109	Cyber Security Principles	49	76	5	Core	
CyB 110	Coding and Information Theory	64	36	4	Core	
CyB 111	English II	33	42	3	Basic	
CyB 112	Probability and Statistics	64	86	6	Core	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

8. Contact

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Program Coordinator:
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الملحق٣: دليل المواد الدراسية

Modules Catalogue | 2023-2024 | دليل المواد الدراسية

Al-Turath University
جامعة التراث

First Cycle – Bachelor's Degree (B.Sc.) Cyber Security Sciences

بكالوريوس – علوم الامن السيبراني

Table of Contents

1. Overview

This catalogue is about the courses (modules) given by the program of Cyber Security Sciences to gain the Bachelor of Science degree. The program delivers (xx) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظره عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج علوم الامن السيبراني للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (٤٠) مادة دراسية، على سبيل المثال، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2023-2024

Module 1

Code	Course/Module Title	ECTS	Semester
CyB 101	Computer Programming I	7	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	79	96
Description			
This section includes a description of the module, 100-150 words			

Module 2

Code	Course/Module Title	ECTS	Semester
CyB102	Discrete Structures	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	0	64	61
Description			
This section includes a description of the module, 100-150 words			

Module 3

Code	Course/Module Title	ECTS	Semester
CyB 103	Computer Organization	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	64	61
Description			
This section includes a description of the module, 100-150 words			

Module 4

Code	Course/Module Title	ECTS	Semester
CYSP104	Data Security Principles	5	1
Class (hr/w)	**Lect/Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	79	46
Description			
This section includes a description of the module, 100-150 words			

Module 5

Code	Course/Module Title	ECTS	Semester
CyB 105	English language 1	3	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	42
Description			
This section includes a description of the module, 100-150 words			

Module 6

Code	Course/Module Title	ECTS	Semester
CyB 106	Calculus	5	1
Class (hr/w)	**Lect/Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	0	64	61
Description			
This section includes a description of the module, 100-150 words			

Module 7

Code	Course/Module Title	ECTS	Semester
CyB107	Computer ProgrammingII	7	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	79	96
Description			
This section includes a description of the module, 100-150 words			

Module 8

Code	Course/Module Title	ECTS	Semester
CyB 108	Digital Logic Design	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	79	63
Description			
This section includes a description of the module, 100-150 words			

Module 9

Code	Course/Module Title	ECTS	Semester
CyB 109	Cyber Security Principles	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	49	76
Description			
This section includes a description of the module, 100-150 words			

Module 10

Code	Course/Module Title	ECTS	Semester
CyB 110	Coding and Information Theory	5	2
Class (hr/w)	**Lect/Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	64	36
Description			
This section includes a description of the module, 100-150 words			

Module 11

Code	Course/Module Title	ECTS	Semester
CyB 111	English II	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	42
Description			
This section includes a description of the module, 100-150 words			

Module 12

Code	Course/Module Title	ECTS	Semester
CyB 112	Probability and Statistics	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	0	64	86
Description			
This section includes a description of the module, 100-150 words			

Contact

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الملحق٤: وصف المادة الدراسية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer ProgrammingI**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 101**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CyB		**College**	CSIS	
Module Leader	Dr. Haider N. Hussain		**e-mail**	haider.hussain@uobasrah.edu.iq	
Module Leader's Acad. Title	Assist Proff		**Module Leader's Qualification**	PHD	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	CyB107 Computer Programming II	**Semester**	2/Level 1

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Gaining knowledge of programming languages offers valuable insights into various other domains and disciplines.. 2. Acquiring proficiency in the effective and responsible utilization and administration of programming languages is crucial for managers and other professionals in today's interconnected global information-driven society. 3. Learn that people must understand the components of programming langauge and how all of these components work together to bring value to an organization. 4. We need to direct our attention to the role that programming languages play in today's interconnected global information society. 5. The competitiveness of many companies relies significantly on the efficient utilization of information systems. Consequently, we need to consider the potential benefits and drawbacks that integrating information systems can bring to both businesses and society. 6. what is a programming languge ? A languge is a group of interrelated statement working together toward a common goal by accepting inputs and producing outputs in an organized transformation process 7. why learing algorithm? 8. why learing Flow chart? 9. Why learn about Basic input/output? 10. Why learn about loop type? - for..loop - while..loop 11. Why Learn about functions? - Defining a Function, Calling a Function, Function Arguments(Call by value, Call by Reference)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Provide the student with the essential skills required to excel in the Python programming language. Python power users possess a comprehensive grasp of the language and can discern the most appropriate tools or functions for specific situations. 2- Acquire crucial skills for working with both basic 'if' statements and nested 'if' statements. 3- Gain essential skills for handling 'for' statements and nested 'for' statements, which are types of loops. 4- Acquire proficiency in writing and utilizing the essential functions.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.

	- Principles of Python Language How can use Python program , entering of variable types , basic input/output statement, and type of operators. - IF TYPE If statement,nested if statement. - LOOP TYPES For loop,nested for loop ,while,do while . - Function Defining a Function, Calling a Function, Function Arguments(Call by value, Call by Reference)

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 and the lab, interactive tutorials, and by considering types 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	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	96	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer Programming language
Week 2	Algorithm Design
Week 3	Flowcharts
Week 4	COMMENTS
Week 5	DATA TYPES
Week 6	VARIABLE TYPES
Week 7	CONSTANTS/LITERALS
Week 8	BASIC INPUT/OUTPUT
Week 9	OPERATORS
Week 10	DECISION-MAKING STATEMENTS
Week 11	LOOP TYPES (for ..loop)
Week 12	LOOP TYPES(while..loop)
Week 13	LOOP TYPES(Do..while loop)
Week 14	FUNCTIONS
Week 15	FUNCTIONS(void)
Week 16	**Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: learing how can use program Python
Week 2	Lab 2: execute many examples of statements BASIC INPUT/OUTPUT
Week 3	Lab 3: execute many examples of VARIABLE TYPES
Week 4	Lab 4: execute many examples of if statement

Week 5	Lab 5: execute many examples of nested if statement
Week 6	Lab 6: execute many examples of switch statement
Week 7	Lab 7: execute many examples of for..loop statement
Week 8	Lab 8 execute many examples of for..loop statement
Week 9	Lab9: execute many examples of nested for..loop statement
Week 10	Lab 10: execute many examples of nested for..loop statement
Week 11	Lab 11: execute many examples of While..loop statement
Week 12	Lab 12: execute many examples of Do..While..loop statement
Week 13	Lab 13:execute many examples of functions
Week 14	Lab 14: execute many examples of functions(void)
Week 15	Lab15: execute many examples of functions(void)

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Python Programming** by Adam Steward - 2022	No
Recommended Texts	**Python Programming** : An Introduction to Computer Science : Second Edition 2009	No
Websites	https://www.guru99.com/python-tutorials.html	

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 Information

معلومات المادة الدراسية

Module Title	**Discrete Structures**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB102**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		
Module Level	1	**Semester of Delivery**	1
Administering Department	CyB	**College**	Type College Code
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	This course aims at teaching students how to think mathematically. Students will learn a set of mathematical facts and techniques as well as some major discrete structures that related with

	computers. They will also learn how to use these facts, techniques and discrete structures to design computer-based solutions for real life problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Developing the acquisition of some acquired skills from inflammation Everyday life. • Developing mathematical skills (skills that help form mathematical sense) skills Estimation, mental calculation, judging the reasonableness of the results, etc.). • Acquiring various methods of conducting operations. • Develop the ability to seriously classify and collect numerous data, tabulate and read them representation and interpretation. •
Indicative Contents المحتويات الإرشادية	✓ Self-learning skills ✓ Skills to work in a team ✓ Thinking skills with mathematical logic ✓ Report writing skills

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 solving exercises..

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem)	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3

الحمل الدراسي المنتظم للطالب خلال الفصل			
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	20% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	0	0%	Continuous	All
	Report	0	0%	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	• Sets • Subsets • Operations on sets • Computer Representation of Sets
Week 2	• Cartesian product • Sequences • Properties of Integers
Week 3	• Matrices • Propositional and Logical Operations • Conditional Statements
Week 4	• Conditional Statements • Mathematical Induction • Product sets and Partitions
Week 5	• Methods of Proving Theorems • Recursive • Relations
Week 6	• Properties of Relations • Operations Relations • Computer Representation of Relations
Week 7	• Properties of Relations • Equivalence Relations • Computer Representation of Relations and Digraphs • Operations and Relations

Week 8	• Functions • Functions for Computer Science • Domain and codomain of the function
Week 9	• Range of the function • Graph of function • • Functions types
Week 10	• Permutation Functions • Graph • The types of graphs
Week 11	• Some Special Simple Graphs • Representing Graphs • Isomorphism and Isomorphic of graphs
Week 12	• Common graphs • Some important concepts
Week 13	• Kinds of graphs • More graphs
Week 14	• Trees • Labeled Trees
Week 15	• Tree Searching • Undirected Trees
Week 16	• Tree Traversal • Traversal Algorithms • Infix, Prefix, and Postfix Notation

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	Kolman, Busby, and Ross (2008). Discrete Mathematical Structures, 6th ed. Prentice Hall.	Yes
Recommended Texts	Kenneth Rosen (2012). Discrete Mathematics and Its Applications, 7th ed. Mc-Graw Hill.	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Module Information معلومات المادة الدراسية					
Module Title	**Computer Organization**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 103**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CyB		**College**	CSIS	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Assist Proff		**Module Leader's Qualification**	PHD	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	/0/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Understand Computer Organization: Explain the significance of computer organization in the context of computing systems and recognize its historical development. 2. Central Processing Unit (CPU): Identify the key components of a CPU, describe the CPU instruction execution cycle, and utilize Python for simulating CPU behavior. 3. Memory Systems: Analyze memory hierarchy, comprehend memory organization and addressing modes, and create simulations of memory systems using Python.

	4. Assembly Language Programming: Familiarize themselves with assembly language, particularly MIPS assembly, and develop proficiency in writing, debugging, and simulating assembly programs using Python. 5. Input/Output (I/O) and Peripherals: Examine I/O organization, device controllers, and communication mechanisms, and simulate I/O operations using Python. 6. Computer Arithmetic: Understand binary and floating-point arithmetic, explore arithmetic operations in the Arithmetic and Logic Unit (ALU), and implement basic arithmetic operations using Python. 7. Software-Hardware Interface: Analyze the interface between software and hardware, interpret software instructions' execution on hardware, and conduct Python-based simulations of hardware interactions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Explain the historical development and significance of computer organization. 2- Describe the components of a CPU, including the ALU, control unit, and registers, and understand the CPU's instruction execution cycle. 3- Create Python simulations to model CPU behavior. 4- Define the memory hierarchy, address modes, and organization, and develop Python-based memory system simulations. 5- Write, debug, and simulate assembly language programs, specifically in MIPS assembly, using Python. 6- Simulate I/O operations and understand I/O organization and device communication mechanisms. 7- Perform binary and floating-point arithmetic, implement basic arithmetic operations in Python, and comprehend the role of the ALU. 8- Develop Python simulations to illustrate software-hardware interactions.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Principles of about low level Programming How can Python program be used simulate low level programming. - How Hardware interacts with software during operation - The diffrencess between Processes - How programming designers improve the performance.

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 and the lab, interactive tutorials, and by considering types 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	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer Organization
Week 2	Historical development of computer architecture and the role of computer organization in computing systems.
Week 3	Components of the CPU: ALU, control unit, registers, CPU operation and the instruction execution cycle.
Week 4	Introduction to Python and its role in simulating CPU behavior.
Week 5	Memory hierarchy: primary (RAM, ROM), cache, secondary storage, memory organization and addressing modes.
Week 6	Simulating memory systems using Python.

Week 7	Introduction to assembly language. MIPS assembly language: syntax, instructions, addressing modes.
Week 8	Writing and debugging simple assembly programs using Python.
Week 9	Input/Output (I/O) and Peripherals: I/O organization and interfacing. Device controllers and communication.
Week 10	Simulating I/O operations using Python.
Week 11	Computer Arithmetic
Week 12	Computer Arithmetic Cont.
Week 13	Software-Hardware Interface
Week 14	Python-based simulations of hardware interactions.
Week 15	Review and Final Exam
Week 16	**Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Assembly Language: Writing and executing simple assembly programs. Understanding the syntax and structure of assembly language.
Week 2	Lab 2: Memory Systems and Addressing: Exploring memory hierarchy through simulations. Practicing memory addressing modes and calculations.
Week 3	Lab 3: CPU Operation and Registers: Simulating CPU operation and instruction execution. Working with CPU registers and flags.
Week 4	Lab 4: Assembly Language Programming: Writing more complex assembly programs to solve specific tasks. Debugging assembly code using tools and simulators.
Week 5	Lab 5: I/O Operations: Simulating input and output operations using Python. Interfacing with devices and device controllers.
Week 6	Lab 6: Computer Arithmetic: Implementing basic arithmetic operations in assembly language. Simulating fixed-point and floating-point arithmetic.
Week 7	Lab 7: pelining and Parallel Processing: Understanding pipelining concepts through practical examples. Exploring parallel programming using multicore processors.

Week 8	Lab 8 Memory Management and Virtual Memory: Simulating memory allocation and deallocation. Exploring virtual memory concepts and page replacement algorithms.
Week 9	Lab9: Hardware Simulations: Creating hardware simulations in Python. Simulating CPU behavior, memory systems, and I/O operations.
Week 10	Lab 10: Assembly Language Projects: Undertaking more extensive assembly language projects. Developing practical solutions to real-world problems.
Week 11	Lab 11: Benchmarking and Performance Analysis: Measuring and analyzing the performance of different architectures. Comparing the efficiency of assembly code vs. high-level languages.
Week 12	Lab 12: Operating System Interaction:
Week 13	Lab 13: Interacting with the operating system through assembly language.
Week 14	Lab 14: Understanding system calls and their impact on hardware.
Week 15	Lab15: Final Project

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Computer Organization and Design" by David A. Patterson and John L. Hennessy".**	No
Recommended Texts	**Computer Systems: A Programmer's Perspective" by Randal E. Bryant and David R. O'Hallaron"**	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A –** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Module Information معلومات المادة الدراسية					
Module Title	**Data Security Principles**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 104**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CyB		**College**	CSIS	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Assist Proff		**Module Leader's Qualification**	PHD	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	/0/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Understand the core principles of data security, including confidentiality, integrity, and availability. 2. Recognize common security threats and vulnerabilities in digital environments. 3. Apply best practices for protecting personal data, devices, and online activities. 4. Identify social engineering tactics and scams and employ strategies to avoid them.

	5. Gain practical skills for securing passwords, email communication, and social media accounts. 6. Learn about malware and antivirus tools, and how to protect against them. 7. Understand the importance of privacy and compliance with data protection regulations. 8. Develop critical thinking skills to assess and respond to data security incidents.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Understand core data security principles: confidentiality, integrity, and availability. 2- Identify common security threats and vulnerabilities. 3- Explain encryption and access control mechanisms. 4- Recognize and respond to social engineering tactics. 5- Comprehend privacy regulations and compliance requirements. 6- Apply practical skills in password management and device security. 7- Evaluate real-world security scenarios and propose solutions. 8- Develop ethical and security-conscious decision-making skills.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Intro to Data Security - Encryption & Access Control - Network Security Privacy & Compliance - Social Engineering & Response - Recognizing social engineering. - Responding to threats. - Secure Practices & Review

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The course employs various strategies, including lectures, discussions, hands-on activities, group projects, assessments, online resources, and guest speakers, to engage students and develop their understanding of data security principles. These strategies aim to create an interactive and comprehensive learning environment.

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	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8.3
Total SWL (h/sem)	**125**		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Data Security : Understanding data security.
Week 2	The importance of data security. Common security threats.
Week 3	Protecting Your Data: Passwords and creating strong ones.
Week 4	Securing your devices. Safe internet usage.
Week 5	Email and Social Media Safety: Recognizing phishing emails.
Week 6	Protecting social media accounts. Safe information sharing.
Week 7	Online Shopping and Banking: Secure online shopping practices.
Week 8	Protecting financial information. Safeguarding personal data..
Week 9	Privacy and Personal Information: Identifying personal information.
Week 10	Privacy settings and online profiles. Risks of oversharing.
Week 11	Malware and Viruses: Understanding malware.
Week 12	Recognizing and avoiding malware. Introduction to antivirus software.

Week 13	Social Engineering and Scams: What is social engineering?
Week 14	Common scams and how to avoid them. Reporting suspicious activities.
Week 15	Review and Final Assessment
Week 16	**Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Orientation and Introduction to Encryption: Lab orientation, safety guidelines, and expectations. Introduction to encryption concepts. Lab tool: VeraCrypt - Setting up encrypted containers.
Week 2	Lab 2: Encryption Practices: Practical encryption exercises using VeraCrypt. Secure file storage and retrieval.
Week 3	Lab 3: Access Control Configuration: Introduction to access control. Lab tool: Windows Security Policies - Configuring access control lists (ACLs).
Week 4	Lab 4: User Authentication: Implementing user authentication and access policies. Testing and validating access control measures.
Week 5	Lab 5 Threat Recognition and Response: Understanding network traffic analysis. Lab tool: Wireshark - Analyzing network traffic for security threats.
Week 6	Lab 6: Simulated Incident Response: Hands-on exercises in simulated incident response. Developing incident response plans. Simulating fixed-point and floating-point arithmetic.
Week 7	Lab 7: Security Tool Utilization (Part 1): Lab tool: Wireshark - Advanced network traffic analysis. Identifying security incidents.
Week 8	Lab 8: Security Tool Utilization (Part 2): Lab tool: Snort - Configuring and using intrusion detection. Responding to detected intrusions.
Week 9	Lab9: Risk Assessment and Mitigation (Part 1):

	Introduction to vulnerability assessments. Lab tool: Nessus - Scanning for vulnerabilities.
Week 10	Lab 10: Risk Assessment and Mitigation (Part 2): Analyzing vulnerability scan results. Proposing security measures based on findings.
Week 11	Lab 11: Secure Communication: Introduction to secure communication. Lab tool: GnuPG (GPG) - Configuring email encryption using GPG.
Week 12	Lab 12: Secure File Transfer: Secure file transfer using GPG. Ensuring confidentiality and integrity.
Week 13	Lab 13: Final Project (Part 1): Introduction to the final project. Project selection and planning.
Week 14	Lab 14: Final Project (Part 2): Project work and implementation. Troubleshooting and finalizing project outcomes.
Week 15	Lab15: Project Presentations and Course Conclusion

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Principles of Information Security" by Michael E. Whitman and Herbert J. Mattord**	No
Recommended Texts	**Computer Security: Principles and Practice" by William " Stallings and Lawrie Brown**	No
Websites	https://owasp.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
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	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 Information
معلومات المادة الدراسية

Module Title	**English I**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 105**		
ECTS Credits	**3**		
SWL (hr/sem)	**100**		

Module Level	1	**Semester of Delivery**	1
Administering Department	CyB	**College**	CSIT
Module Leader		**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	/ /2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

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

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

Module Objectives أهداف المادة الدراسية	1. Developing communication approaches. 2. Enhancing total physical response (TPR). 3. Establishing multi-outcome learning (English and science knowledge for instance).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The students will develop their abilities to speak, read and write. 2. Connects language with body movements, allowing students to associate words and phrases with actions, making the learning process more engaging and memorable. 3. Encourages active participation and problem-solving, fostering language

	acquisition in a meaningful context. 4. motivates students by connecting language skills to their interests. 5. caters to different learning styles and enhances comprehension and retention.
Indicative Contents المحتويات الإرشادية	Part one – Reading: How to read (reading methods), predicting contents by using pictures in a text, skimming the text to get general ideas, scanning the text using headlines, extract meaning from content, making notes, searching to find information, linking ideas, getting information from websites, getting extra information from diagrams and pictures, using a topic sentences to help understanding, identifying the writer opinion, looking at data (tables, charts, and graphs), getting facts from text, using pronouns and synonyms to avoid repetition, organizing notes, using student own knowledge to understand the text, using references to understand a text, and using text and visuals to understand statistics. Part two – Writing: Checking writing errors (in spelling, capital letters, punctuation, and grammar), enhancing handwriting, paragraphs (block and indented styles), linking ideas (sequencing words: first, after, then, finally,…), greetings and endings, writing definitions, giving examples, avoiding repetitions, summarizing the main points of text, language to describe tables, charts, and graphs.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Emphasize real-life communication and provide opportunities for students to practice speaking, listening, reading, and writing in English through interactive activities such as discussions, role-plays, and group projects. 2. Incorporate physical movement and actions to aid language acquisition. This approach connects language with body movements, allowing students to associate words and phrases with actions, making the learning process more engaging and memorable. 3. Design tasks or projects that require students to use English to accomplish a specific goal. 4. Integrate English language learning with subject-specific content, such as science or history, enabling students to learn English while gaining knowledge in other areas. 5. Engage multiple senses (visual, auditory, kinesthetic) during instruction by incorporating visuals, multimedia, hands-on activities, and interactive technology. This approach caters to different learning styles and enhances comprehension and retention.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**75**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative 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
	Report	1	20% (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	Student life: Ways of reading; writing about people
Week 2	Daily routines: Reading - Predicting contents, skimming; writing about routines and procedures
Week 3	People and environment: Reading - Scanning (using headings), mining from context
Week 4	People and environment: Writing about study habits and describing our life
Week 5	Architecture: Reading - Making notes, search and finding information;
Week 6	Architecture: Reading - search and finding information; writing about buildings
Week 7	Education: Reading - Predicting context (using titles and first feu sentences, linking ideas; writing a letter or Email
Week 8	**Midterm Exam**

Week 9	Technology: Reading - Getting information from web sites, using visuals in websites; writing a description of a device
Week 10	Food, Drinks, and culture: Reading – Food from other countries
Week 11	Food, Drinks, and culture: Writing Describing food and drinks
Week 12	Cities of the world: Reading – City life; writing about cities
Week 13	Brain power: Reading – using pronouns and synonyms to avoid repetition, organizing notes; writing a summary
Week 14	Staying alive: Reading - Dangerous diseases of our time (using what you know, using reference to understand text
Week 15	Staying alive: Reading - Focusing on statistics); writing about statistics
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Richard Harrison. Headway: Academic skills- reading, writing, and study skills. Oxford.	Yes
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Module Information
معلومات المادة الدراسية

Module Title	**Calculus**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **l Lectures**	
Module Code	**CyB 106**				
ECTS Credits	**5**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	/ /2023		**Version Number**	1.0	

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Calculus	**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	-Cognitive Goals 1. Upon Successful completion of this subject, students should : 2. Be able to use algebra accurately; 3. Be able to plot and interpret graphs 4. Be able to use exponential, logarithm, and trigonometric functions in applications; 5. Be able to calculate the sums of arithmetic and geometric series and use them in simple financial calculations; 6. Be able to use basic rules of differentiation and calculate derivatives of simple functions; 7. Be able to use matrix in solving linear system of equations;

	-Skill goals 1. Enable the student to refer the mathematical problem to a program and find a solution through the computer. 2. Student realization of the close relationship between mathematical problems and computer programs
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. This subject is designed for students who enter university without a strong background in mathematics 2. It is also for students who are planning to enroll in subjects requiring basic numeracy skills such as sciences, computing and information technology. 3. The subject reinforces calculation skills, basic algebra . 4. This subject is designed to work with formula. 5. It is also to use applications of exponential and logarithmic functions. 6. It is designed how applying matric to solve linear system of equations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Sequences and series Sequence is a function whose domain is the set of natural numbers. The terms of the sequence are the function values. There will be studied two types of sequences: arithmetic and geometric sequences with their partial sums. While series means that the infinite sum of geometric sequence. [12 hrs] Part B – Matrices Matrices are simply a rectangular array of numbers with **m** rows and **n** columns . There will be studied some: types of matrices, algebra of matrices. It is also studied how to find inverse of matrix, how to use matrix and its inverse to solve linear system of equations, how to find determinant of matrix and use it to solve linear system of equations. [12 hrs] Part C – Derivatives and integrals Derivatives mean that if $f: x \to y$ is a function, the derivative of a function f at a point x_0 written $f'(x_0)$; is given by $f'(x_0) = \lim_{x \to x_0} \frac{f(x)-f(x_0)}{x-x_0}$, If this limit exists and finite. There will be studied the derivatives of usual functions, implicit derivatives, derivatives of trigonometric functions, derivatives of exponential and logarithm functions. Graphical of exponential and logarithm functions. While integrals means that if $f(x)$ function defined at some interval, let $F(x)$ be another function such that $F'(x) = f(x)$, $F(x)$ called an infinite integral of $f(x)$ and is written as the following form $\int f(x)dx = F(x)) + C$. [12 hrs]. Part D – Interest Interest is the rental fee charged by a lender to a business or an individual for the use

	of money . There will be studied simple and compound interests. Simple interest means that the interest is calculated *only once* for the entire time period of the loan. At the end of the time period, the borrower repays the principal plus the Interest . while compound interest means that means that the interest is calculated more than once during the time period of the loan. [9 hrs].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1.Explain the topic in detail by the teacher by writing the topic and explaining it on the board and other teaching aids 2. Discussion during the lecture period 3. Doing homework 4. See the websites of the subject

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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Sequences
Week 2	Arithmetic sequences and their partial sims
Week 3	Geometric sequences and their partial sums
Week 4	Series
Week 5	Matrices and algebra of matrices
Week 6	Inverse of matrices
Week 7	Solving linear system of equations by using inverse of matrices
Week 8	Determinant and using it to solve linear system of equations
Week 9	Derivatives
Week 10	Derivatives of trigonometric, exponential, logarithm functions
Week 11	Integrals
Week 12	Integral of trigonometric, exponential, logarithm functions
Week 13	Interest and simple interest
Week 14	Compound interest
Week 15	Present and future values of an annuity
Week 16	**Preparatory week before the final Exam**

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Cheryl Cleaves, Margie Hobbs and Jeffry Noble	Yes
Recommended Texts	James Stewart , Lothar Redlin and Saleem Watson Robert Brechner and George Bergeman	yes
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 Information
معلومات المادة الدراسية

Module Title	**Computer ProgrammingII**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB107**		
ECTS Credits	**7**		
SWL (hr/sem)	**175**		
Module Level	1	**Semester of Delivery**	2
Administering Department	CyB	**College**	CSIS
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	/ /2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CyB101 Computer Programmingl I	**Semester**	1/Level 1
Co-requisites module	None	**Semester**	

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

Module Objectives أهداف المادة الدراسية	1. Learn of programming languages provides added insight into other fields. 2.Understanding the practical and responsible use and management of program language is important for managers and other business knowledge workers in today's global information Society. 3. ensure the student understanded the components of programming language and how all of these components work together to bring value to an organization.

	4. turn students attention to the role that programming language plays in global information Society. 6. in this course we will cover basic concepts and techniques for programming including arrays and strings. 7. Why learn about loop types? - For..loop. - While..loop. - Do while loop. - Nested loop. 8. Why learn about series? 9. Why learn about Shape? 10.Why learn about strings? 11. Why Learn about functions? - Defining a Function, Function Declarations, Calling a Function, Function Arguments(Call by value, Call by Reference) 12. Why learn about Array? - One and Two-dimensional array.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Give the student the most important skills to become a Python power users have a broad understanding of Python language and they know which tool or function is best used in a given situation. 2- At the end of this course, students should be able to design, write and test a Python program to implement a working solution to a given problem. 3- Learn the most important skills to deal with loop types, functions, strings
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: - Principles of electronic How can use a Python program, entering of variable types, basic input/output the statement, and type of operators. - Shapes If statement, nested if statement, For loop, nested for loop, while, and do while. - Series If statement, nested if statement, For loop, nested for loop, while, and do while. - Function Defining a Function, Calling a Function, Function Arguments(Call by value, Call by Reference) - Strings • Declaration, String function, Array of string - Arrays • One-dimensional array • Two-dimensional array

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 and the lab, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	96	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer Programming II

Week 2	Loop type (break with continue)
Week 3	Series in Python
Week 4	Use Function with Series in Python
Week 5	Shape in Python
Week 6	Function with Shape in Python
Week 7	String in Python
Week 8	String function
Week 9	One dimension array
Week 10	One dimension array with search
Week 11	One dimension array with Sort
Week 12	One dimension array with Function
Week 13	Two-dimension array
Week 14	Two-dimension array with Array sort and search
Week 15	Two-dimension array with Function
Week 16	**Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: execute many examples of Loop type
Week 2	Lab 2: execute many examples of Loop type (break with continue)
Week 3	Lab 3: execute many examples of Use Series in Python
Week 4	Lab 4: execute many examples of Use Series in Python
Week 5	Lab 5: execute many examples of Use Function with Series in Python
Week 6	Lab 7: execute many examples of Shape in Python
Week 7	Lab 8 execute many examples of Function with Shape in Python
Week 8	Lab 6: execute many examples of String
Week 9	Lab9: execute many examples of One dimension array
Week 10	Lab 10: execute many examples of One dimension array with a search
Week 11	Lab 11: execute many examples of One dimension array with a sort
Week 12	Lab 12: execute many examples of One dimension array with Function
Week 13	Lab 13:execute many examples of two dimension

Week 14	Lab 14: execute many examples of Two dimension array with a sort and search
Week 15	Lab15: execute many examples of Two dimension array with Function

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**Python Programming** by Adam Steward - 2022	No
Recommended Texts	Python Programming : An Introduction to Computer Science : Second Edition 2009	No
Websites	https://mrcet.com/downloads/digital_notes/CSE/III%20Year/PYTHON%20PROGRAMMING%20NOTES.pdf	

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 Information

معلومات المادة الدراسية

Module Title	**Logic Design**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 108**		
ECTS Credits	**4**		
SWL (hr/sem)	**105**		
Module Level	1	**Semester of Delivery**	2
Administering Department	CyB	**College**	CSIT
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	/ /2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module		**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	This course contributes primarily to the students' knowledge for working professionally in these areas of logic design. Students should be able to apply knowledge of science and engineering, as well as the techniques, skills, and modern engineering tools to analyze, design and optimize logic circuits. In addition, this course provides a modern introduction to logical design and the basic building blocks used in digital systems, in particular digital computers. The students will be introduced to introductory logic design, their principle of operation, analysis, and design. In sum, they will learn how to use this knowledge more easily tailor the degree of technology coverage, accommodating both electrical and computer engineering and computer science audiences.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students will be able to: 1. Using number systems and it applies to the material of logic systems. 2. Be familiar with truth tables and how to use them for analysis and design. 3. Using switching algebra and the implementation of switching functions using the common gates AND, OR, NOT, NAND, NOR, Exclusive-OR, and Exclusive-NOR. 4. Simplification combinational logic circuits by using Karnaugh map. 5. Analyze and design combinational larger logic circuits. 6. Analyze sequential logic circuits. 7. Ability to analyze and design a system, component, or process to meet desired needs. 8. Ability to analyze, design and conduct experiments. 9. In addition to the measurable student learning outcomes listed above, the students will be able to demonstrate their knowledge of the course material by Analyze real problems through laboratory experiments. 10. The ability to apply their skills in a variety of practical sciences.
Indicative Contents المحتويات الإرشادية	**1. Number systems** • Positional number system. • Binary digits(bits). • Convert from binary to decimal. • Decimal to binary. • Hexadecimal (hex). • Octal numbering systems. • Converting between the four numbering systems (decimal, binary, Hex and octal).

	• Fraction of number system. • Signed and unsigned binary numbers. • Two's complement, binary addition. • Subtraction. • Binary coded decimal (BCD) codes. • ASCII code. • Gray code. **2. Combinational Logic Circuits and switching algebra.** • Switching algebra. • Properties of switching algebra**.** • Development of a truth table. • Manipulating algebraic functions. • Sum of products (SOP). • Product of sum (POS). **3. Switching algebra and logic gates.** • Implementation of switching functions using networks of AND gates. • OR gates. • NOT gates. • DeMorgan's theorem. • From truth table to algebraic expression. • Exclusive-OR gates • Simplifying algebraic expressions. • Consensus operator. **4. Karnaugh map.** • Two, three, and four-variable Karnaugh map. • Minimum SOP expressions using the Karnaugh map. • Finding a minimum product of sums (POS) expression. • Five and six-variable Karnaugh map. • Economize by sharing gates. **5. Designing Combinational system.** • Design 1-bit and 2-bits full adder design 1-bit subtractor. • Subtractor/ adder. • Comparators. • Binary decoders. • Binary encoder. • Multiplexe and Demultiplexe. **6. Analysis of sequential systems.** • D, S-R, T. • J-K flip flops. • flip flop with clear and present inputs, timing for flip flop.

	• Moore model circuit. • Mealy model analysis.

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 through class and laboratory experiments. The objective of this module is to serve as a cornerstone for the learning of logic design, digital system design, and computer design by students. At the same time, discussion of combinational logic: logic gates, minimization techniques, arithmetic circuits, and modern logic devices such as field programmable logic gates. This will be accomplished through group discussions, classes, reports, feedback, assignments, and interactive tutorials and by considering types of simple experiments, and exercises that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	63	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.2
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**	4	10% (10)	2, 5, 8, and 12	LO#1-5
	Assignments	2	10% (10)	2 and 12	LO #1-6
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #3-5
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #5
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Number Systems.
Week 2	Number Systems.
Week 3	Number Systems.
Week 4	Number Systems.
Week 5	Combinational Logic Circuits and switching algebra.
Week 6	Combinational Logic Circuits and switching algebra.
Week 7	Switching algebra and logic gates.
Week 8	Switching algebra and logic gates.
Week 9	Switching algebra and logic gates.
Week 10	**Mid-term Exam.**
Week 11	Karnaugh map.
Week 12	Karnaugh map.
Week 13	Designing Combinational system.
Week 14	Designing Combinational system.
Week 15	Designing Combinational system.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Logic circuit design software and installation method.
Week 2	Learning how to choose the appropriate software of in logic circuits design that are easy to use and have sustainability. Learning how to use interfaces of logic circuits design program.
Week 3	Introduction Logic Gates. AND Gate and Logic Diagram. Examples with Exercises.
Week 4	OR Gate and Logic Diagram. Examples with Exercises.
Week 5	NOT Gate and Logic Diagram. Examples with Exercises.
Week 6	NAND Gate and Logic Diagram. Examples with Exercises.
Week 7	NOR Gate and Logic Diagram. Examples with Exercises.
Week 8	XOR Gate and Logic Diagram. Examples with Exercises.
Week 9	XNOR Gate and Logic Diagram. Examples with Exercises.
Week 10	Logic circuits and solving problems. Drawing the truth table from a given logic circuit.

	Designing a logic circuit from a given problem and testing it by also drawing a truth table. Examples with Exercises.
Week 11	Boolean Algebra. Distributive Law. Rules of Boolean Algebra. Boolean Expression/Function. Examples with Exercises.
Week 12	De Morgan's Theorems. Examples: using Boolean Algebra techniques Learn how to Work in groups. Examples with Exercises.
Week 13	Standard Form of Boolean Expressions All Boolean expressions, regardless of their form, can be converted into two standard forms: ▪ The sum- of – products form. ▪ The product –of- sums form. Examples with Exercises.
Week 14	How to construct Full -Adder from two Half –Adders with Logic circuit Examples with Exercises.
Week 15	Exercises in general. • Work in groups
Week 16	**Preparatory week before the final Exam through test students.**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Textbook 1: M. Morris Mano.," Digital Design", Published by McGraw-Hill, 3rd edition (2004) 2. Morris Mano M, "Digital Logic and Computer Design", Prentice Hall, New Delhi (2006). 3. Alan B. Marcovitz - Introduction to Logic Design, 3rd Edition -McGraw-Hill (2009). 4. Charles H. Roth Jr., Larry L Kinney - Fundamentals of Logic Design, 6th Edition-CL Engineering (2009).	Yes

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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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 Information

معلومات المادة الدراسية

Module Title	Cyber Security Principles			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 109**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of this course is to equip students with a strong foundation in cybersecurity principles and practices. By the end of the course, students will have a deep understanding of cybersecurity concepts, be able to recognize and mitigate common security threats, and appreciate the ethical and legal aspects of cybersecurity.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course, students will: 1. Understand Cybersecurity Fundamentals: Gain a strong foundation in cybersecurity principles, terminologies, and concepts. 2. Identify Security Threats: Recognize common cybersecurity threats and vulnerabilities. 3. Implement Security Measures: Learn practical strategies and tools to secure digital systems and networks. 4. Analyze Security Incidents: Develop skills to investigate and respond to security incidents. 5. Promote Cybersecurity Awareness: Understand the importance of cybersecurity in today's digital world and promote best practices.
Indicative Contents المحتويات الإرشادية	The indicative contents of the "Cyber Security Principles" course include an introduction to cybersecurity fundamentals, exploration of the cyber threat landscape, information security principles, network security, cryptography, access control and authentication, incident response, and legal and ethical considerations. These topics collectively provide students with a holistic understanding of cybersecurity concepts and practices.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The course employs a combination of teaching strategies, including lectures, interactive discussions, hands-on labs, and group projects. These strategies foster active engagement and practical application of cybersecurity principles, ensuring students grasp theoretical concepts while gaining valuable real-world experience. Additionally, guest lectures by industry experts and participation in cybersecurity-related events enhance students' exposure to current industry practices and challenges.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	76	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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

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

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to Cyber Security Definition and importance of cybersecurity.
Week 2	Historical development and evolution of cyber threats. Ethical and legal considerations in cybersecurity.
Week 3	Cyber Threat Landscape Types of cyber threats (e.g., malware, phishing, DDoS attacks).
Week 4	Understanding threat actors and motivations.
Week 5	Information Security Principles Confidentiality, integrity, and availability (CIA triad).
Week 6	Security policies, standards, and guidelines.
Week 7	Network Security Network security basics.
Week 8	Firewalls, intrusion detection systems (IDS), and intrusion prevention systems (IPS).
Week 9	Cryptography Principles of encryption and decryption.
Week 10	Cryptographic algorithms and protocols.
Week 11	Access Control and Authentication User authentication methods (e.g., passwords, multi-factor authentication).
Week 12	Role-based access control (RBAC) and permissions.
Week 13	Security Incidents and Response Identifying and responding to security incidents.
Week 14	Developing an incident response plan.
Week 15	Final Review and Examination

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab1: Introduction to Lab Environment Setting up the lab environment
Week 2	Lab 2: introduction to lab tools and resources.
Week 3	Lab 3: Vulnerability Assessment (Aligned with Cyber Threat Landscape) Conducting vulnerability scans.
Week 4	Lab 4: Identifying and prioritizing vulnerabilities.
Week 5	Lab 5: Network Monitoring (Aligned with Network Security) Monitoring network traffic and anomalies.
Week 6	Lab 6: Analyzing network logs and events.
Week 7	Lab 7: Ethical Hacking (Aligned with Ethical Hacking) Introduction to ethical hacking.
Week 8	Lab8: Performing ethical hacking exercises.
Week 9	Lab9: Incident Response (Aligned with Security Incidents and Response) Developing an incident response plan.
Week 10	Lab10: Identifying, analyzing, and mitigating security incidents.
Week 11	Lab11: Security Solutions (Aligned with Security Solutions) Configuring and deploying security solutions (e.g., firewalls, intrusion detection systems).
Week 12	Lab12: Conducting security assessments.
Week 13	Lab13: Group Projects (Aligned with Various Topics)
Week 14	Lab14: Collaborative group projects on cybersecurity scenarios.
Week 15	Lab15: Final Lab Review and Assessment (Aligned with Final Review and Examination)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**“Cybersecurity: Principles and Practice" by William Stallings and Lawrie Brown**	No
Recommended Texts	**"Introduction to Computer and Network Security: Navigating Shades of Gray" by Timothy Shimeall and Jonathan Spring:**	No
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Module Information

معلومات المادة الدراسية

Module Title	Coding and Information Theory	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 110**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		

Module Level	1	**Semester of Delivery**	2
Administering Department	CyB	**College**	
Module Leader	Name	**e-mail**	E-mail
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	/ /2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of this course is to equip students with a strong foundation in coding and information theory, enabling them to understand, analyze, and apply these concepts to enhance the security of digital data and communication.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course, students will: 1. Understand Information Theory: Explain the fundamental concepts of information theory, including information, entropy, and uncertainty, and their relevance to Cyber Security. 2. Apply Error Detection and Correction: Implement error detection and correction techniques, including Hamming codes, parity, and cyclic redundancy checks (CRC), to ensure data integrity in digital communication. 3. Implement Encryption and Decryption: Apply encryption and decryption algorithms, both symmetric and asymmetric, to secure digital data transmission and understand their role in data confidentiality. 4. Manage Public Key Infrastructure (PKI): Describe the components of PKI, including digital certificates, key management, digital signatures, and trust models, and their importance in secure communication. 5. Utilize Data Compression: Implement lossless and lossy data compression techniques such as Huffman coding and Run-Length Encoding (RLE) for efficient data storage and transmission. 6. Apply Coding Theory in Cyber Security: Evaluate and apply coding and information theory principles in the context of Cyber Security, including secure key exchange and the establishment of secure communication channels. 7. Practical Applications: Conduct hands-on exercises to implement encryption and decryption algorithms, analyze real-world case studies, and solve practical problems related to coding and information theory in Cyber Security. 8. Assess Security Implications: Evaluate the role of coding and information theory in enhancing the security of digital information, communication systems, and cybersecurity practices. 9. Critical Thinking: Develop critical thinking skills by analyzing and solving complex problems related to information theory and its applications in Cyber Security. 10. Communication Skills: Effectively communicate technical concepts related to coding and information theory in both written and oral forms.
Indicative Contents المحتويات الإرشادية	1. Introduction to Information Theory: Understanding the principles of information, entropy, and uncertainty as foundational concepts. 2. Error Detection and Correction: Exploring error detection and correction codes, including Hamming codes and cyclic redundancy checks (CRC) for data integrity. 3. Cryptography Basics: Introduction to encryption and decryption techniques, encompassing symmetric and asymmetric encryption algorithms. 4. Public Key Infrastructure (PKI): Examining PKI components, digital certificates, key management, and trust models in secure communication. 5. Data Compression: Implementing lossless data compression methods like Huffman coding and Run-Length Encoding (RLE) for efficient data storage and transmission. 6. Coding Theory in Cyber Security: Applying coding and information theory to establish secure communication channels and secure key exchange. 7. Practical Applications: Hands-on exercises, real-world case studies, and practical assignments reinforcing course concepts.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The course employs a multifaceted approach, combining lectures to introduce theoretical concepts, interactive discussions to stimulate critical thinking, practical labs for hands-on implementation, and real-world case studies to illustrate practical applications. Collaborative group projects and guest speakers from the industry enrich the learning experience, while self-study and problem-solving exercises foster independent learning and problem-solving skills among students. Continuous feedback and the use of technology enhance engagement and facilitate a comprehensive understanding of coding, encryption, and data security principles in the context of Cyber Security.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

Delivery Plan (Weekly Syllabus)
المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to Information Theory

	Information, entropy, and uncertainty.
Week 2	Shannon's information theory.
Week 3	Error Detection and Correction Codes Types of errors in digital communication.
Week 4	Hamming codes, parity, and cyclic redundancy checks (CRC).
Week 5	Cryptography Basics Introduction to encryption and decryption.
Week 6	Symmetric and asymmetric encryption algorithms.
Week 7	Public Key Infrastructure (PKI) Digital certificates and key management.
Week 8	Digital signatures and trust models.
Week 9	Data Compression Lossless and lossy compression techniques.
Week 10	Huffman coding and Run-Length Encoding (RLE).
Week 11	Coding Theory in Cyber Security Application of coding theory in secure communication.
Week 12	Secure key exchange and secure channels.
Week 13	Practical Applications Hands-on exercises in implementing encryption and decryption algorithms.
Week 14	Real-world case studies in data security and error correction.
Week 15	Final Review and Examination

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**"Information Theory, Inference, and Learning Algorithms" by David MacKay:**	No
Recommended Texts	**"Introduction to Computer and Network Security: Navigating Shades of Gray" by Timothy Shimeall and Jonathan Spring:**	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors

	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
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Module Information معلومات المادة الدراسية					
Module Title	**English II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 111**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CyB		**College**	CSIT	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	/ /2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CyB105	**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. Developing communication approaches. 2. Enhancing total physical response (TPR). 3. Establishing multi-outcome learning (English and science knowledge for instance).

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. **Improved Communication Skills:** Students should be able to communicate more effectively in English, expressing themselves with greater fluency and accuracy. They can participate in everyday conversations, express opinions, and discuss various topics. 2. **Expanded Vocabulary:** Learners should have developed a broader range of vocabulary, allowing them to understand and use a wider variety of words and expressions. 3. **Grammar Proficiency:** Students are expected to have a better grasp of English grammar, allowing them to construct more complex sentences and convey different tenses and aspects more accurately. 4. **Reading Comprehension:** Learners should be able to read and comprehend a variety of texts, such as articles, short stories, and excerpts from novels, with a reasonable level of understanding. 5. **Writing Skills:** Students should be able to write coherent paragraphs and short texts, such as emails, letters, and simple essays, demonstrating improved sentence structure and organization. 6. **Listening Skills:** Learners should have developed better listening skills, allowing them to understand and follow conversations, interviews, and media in English with less difficulty. 7. **Cultural Awareness:** At this level, students may have been exposed to various cultural aspects of English-speaking countries, leading to a better understanding of cultural norms and customs. 8. **Independent Learning:** Students should be more confident and independent in their language learning journey, taking initiatives to practice and learn outside of the classroom. 9. **Preparation for Advanced Levels:** English Level II usually serves as a foundation for more advanced language courses. After completing this level, students should be ready to progress to higher-level language studies.
Indicative Contents المحتويات الإرشادية	International student: READING: Going abroad to study. • Following instructions: filling in forms • Reading methods: skim; scan; intensive reading; extensive reading WRITING: A host family • Checking your writing: error correction - punctuation and spelling • Writing an informal email Where in the world: READING: Three countries • Skimming and scanning: reading for the general idea, and for particular information WRITING: My country • Brain storming ideas: topic areas and examples; • completing a paragraph • Linking ideas (1): but, however, although • Writing a description of my country

	Newspaper articles: READING: An unexpected journey • Predicting content: using the title and the pictures • Meaning from context: guessing the meaning of new words WRITING My country • Brainstorming ideas: topic areas and examples; completing a paragraph • Linking ideas (1): but, however, although Writing a description of my country Modern technology: READING Innovation • Purpose and audience (1 an d 2): using visual and written clues WRITING Mistaken identity • Sentences/Paragraphs; helping your writing flow • Varying the structure: making writing interesting Writing an article Conferences and visits READING: A conference in Istanbul • Purpose and audience (1 an d 2): using visual and written clues WRITING Invitations • Using formal expressions: writing academic emails and letters • Writing a formal email Science and our world: READING: Air pollution • Making notes: organizing recording, and remembering important • information • Interpreting meaning; recognizing fact and speculation WRITING Technology - good or bad? • Organizing ideas (1): planning the arguments for and against • Linking ideas (2): first, for instance, in conclusion ... Writing a discursive essay People: past and present READING: Three famous writers • Using original sources: dealing with difficult language and • unknown vocabulary WRITING: Trends • Paraphrasing and summarizing: using other sources • Writing a summary The world of IT: READING: Computers • Rephrasing and explaining; dealing with difficult scientific and • technological words • Avoiding repetition (2): pronouns and what they refer to WRITING: IT - benefits and drawbacks • Linking ideas (3): cause and result Coherent writing; writing up notes • Writing from notes Inventions, discoveries, and processes: READING: How things work • Intensive reading: strategies for focusing your reading

	• Linking ideas (4); sequencing words to describe a process WRITING How things are made • The passive voice; writing in neutral style • Clarifying a sequence: describing a process • Writing a description of a process Travel and tourism: READING: International tourism • Interpreting data: statistical information in graphs, charts, and texts VOCABULARY DEVELOPMENT Varying vocabulary (2) • A voiding repetition (3): describing graphs using synonyms, adjectives + nouns, verbs + adverbs

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	For Teachers: 1. **Interactive and Communicative Approach:** Encourage students to engage in meaningful conversations, discussions, and role-plays. This approach emphasizes real-life communication and helps students practice using English in different contexts. 2. **Error Correction:** Provide constructive feedback on students' errors without discouraging them. Focus on correcting essential mistakes that hinder communication while praising their efforts to build confidence. 3. **Contextual Learning:** Use authentic materials like articles, videos, and short stories to introduce new vocabulary and grammar in relevant contexts. This helps students understand language usage in real-life situations. 4. **Task-Based Learning:** Design activities and tasks that require students to use English to complete meaningful projects or solve problems. This approach fosters critical thinking and language application skills. 5. **Grammar in Context:** Teach grammar points within the context of authentic texts or dialogues. This helps students see how grammar functions in real communication rather than just learning rules in isolation. 6. **Encourage Reading:** Assign reading materials suited to the students' proficiency level. Reading improves vocabulary, comprehension, and exposes students to different writing styles. 7. **Listening Practice:** Provide opportunities for listening exercises, such as watching English-language videos, movies, or podcasts. This enhances listening skills and exposes students to different accents and speech patterns. 8. **Writing Practice:** Assign writing tasks like essays, emails, or short stories. Provide feedback on their writing to improve their skills gradually. For Students:

	1. **Consistent Practice:** Regularly practice reading, writing, listening, and speaking in English. Consistency is crucial for improvement. 2. **Use Language Apps and Online Resources:** Utilize language learning apps and online resources to reinforce learning, expand vocabulary, and improve grammar. 3. **Join Language Exchange Groups:** Engage in language exchange programs or groups where you can practice speaking English with native speakers or other learners. 4. **Set Goals:** Establish clear language learning goals and track your progress. Celebrate achievements and milestones. 5. **Immerse Yourself:** Surround yourself with English as much as possible. Watch English movies, TV shows, and listen to English music or podcasts. 6. **Keep a Language Journal:** Write down new words, expressions, and grammar rules you learn. Review and practice them regularly. 7. **Practice with Different Media:** Practice English through various mediums like reading books, watching documentaries, listening to news, or participating in online forums. 8. **Be Patient and Persistent:** Language learning takes time and effort. Stay motivated and persistent even if you encounter challenges

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**75**		

Module Evaluation

تقييم المادة الدراسية

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

	Report	1	20% (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	International student
Week 2	Where in the world
Week 3	Newspaper articles
Week 4	Conferences and visits
Week 5	Science and our world
Week 6	Midterm exam
Week 7	People: past and present
Week 8	The world of IT
Week 9	Inventions, discoveries, and processes
Week 10	Travel and tourism
Week 11	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	Sarah Philpot. Headway: Academic skills- reading, writing, and study skills. LEVEL 2 Student's Book. Oxford.	Yes
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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Module Information
معلومات المادة الدراسية

Module Title	**Probability and Statistics**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CyB 112**		
ECTS Credits	**8**		
SWL (hr/sem)	**200**		
Module Level	1	**Semester of Delivery**	2
Administering Department	CyB	**College**	Computer science and information technology
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Calculus	**Semester**	1

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

Module Aims أهداف المادة الدراسية	1. It gives the student a broader idea of the possibility of things happening . 2. The probability of things gives more opportunity for imagination. 3. The moment- generating function gives him more opportunity to deal with the derivative of the moment- generating function.

	4. The student will be qualified in the next stage to deal with probability and statistics, especially in the subject of simulation .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the vocabulary of probability and statistics . 2. Understanding the nature of statistics as an integrated system of knowledge. 3. Developing student's statistical concepts. 4. An attempt to reach the concepts of probability and statistics . 5. The ability to solve complex statistical problems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – permutations and combinations Permutations mean dealing with ordered things, but harmonics, the order is unimportant. Part B- Probability Probability is a measure of the possibility of an event occurring. Probability is measured as a number between zero and one, where zero indicates impossibility and one indicates certainty. The higher the probability of an event, the greater the possibility of that event occurring. Part C- Distributions Connected and discreet distributions and how to deal with them.

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 type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.7

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - permutations and combinations
Week 2	Probability
Week 3	Conditional probability and bay's theorem
Week 4	Connected random variables
Week 5	Discrete random variables
Week 6	Functions of random variables
Week 7	Expectations
Week 8	Variances
Week 9	Moment – generating function
Week 10	Joint distributions and marginal distributions
Week 11	Discrete distributions
Week 12	Continuous distributions
Week 13	First exam
Week 14	Second exam
Week 15	Review important topics

Week 16	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب سلسلة من الاحتمالات تأليف سيمور ليبشتز	Yes
Recommended Texts	كتاب مقدمة في الإحصاء الرياضي تأليف الدكتور صباح داود سليم.	yes
Websites	Adobe reader-[simue-pdf] Probability et statistique cours et problemes series schaum	

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.