

**Ministry of Higher Education and Scientific Research
Academic Supervision and Evaluation Authority
Quality Assurance and Academic Accreditation Department
Accreditation Department**



Academic Program and Course Description Guide

(Bologna Process)

2025-2026

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized into curricular modules. The primary purpose is to build and refine graduates' skills, making them qualified to meet the demands of the labor market. The program is reviewed and evaluated annually through internal or external audit procedures and programs, such as the External Examiner Program. The academic program description provides a concise overview of the program's key features and courses, outlining the skills students are expected to develop in alignment with the program's objectives. The program description is crucial because it serves as the cornerstone of program accreditation. It is co-written by faculty members under the supervision of academic committees in the academic departments.

This second edition of the guide includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide considering the latest developments in the Iraqi educational system. This includes a description of the academic program in its traditional form (annual, semester), as well as adopting the academic program description circulated pursuant to the Department of Studies Circular No. 3/2906 dated May 3, 2023, regarding programs that adopt the **Bologna Process** as the basis for their work. In this regard, we cannot but emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth running of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a concise summary of the program's vision, mission, and objectives, including a detailed description of the targeted learning outcomes based on specific learning strategies.

Course Description: Provides a concise summary of the course's key features and the learning outcomes expected of the student, demonstrating whether the

student has made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious vision for the future of the academic program to be an advanced, inspiring, motivating, realistic, and applicable program.

Program mission: It briefly explains the objectives and activities required to achieve them and also identifies the program's development paths and directions.

Program objectives: These are statements that describe what the academic program intends to achieve within a specific time and are measurable and observable.

Curriculum structure: All courses/subjects included in the academic program according to the approved learning system (semester, annual, Bologna track), whether required by (ministry, university, college, or scientific department), along with the number of academic units.

Learning outcomes: A consistent set of knowledge, skills, and values acquired by a student after successfully completing the academic program. Learning outcomes for each course must be defined in a manner that achieves the program's objectives.

Teaching and learning strategies: These are the strategies used by faculty members to develop student teaching and learning. They are plans followed to achieve learning objectives, describing all classroom and extracurricular activities to achieve the program's learning outcomes.

Academic Program Description Form

University Name: Al-Turath University

College/Institute: College of Engineering

Department: Department of Cybersecurity Engineering

Academic or Professional Program Title: Bachelor's Final Degree

Title: Bachelor's in Cybersecurity Engineering

Academic System: Semester Description

Preparation Date: September 2025

File Completion Date: September 2025



Signature:

Name of Academic Assistant: Prof. Dr. J. M. Ali

Date:10/2025

Signature:

Name of Department Head: Dr. Ali Hadi Hussein

Date:10/2025

Name of the Director of the Quality Assurance and University Performance Division:

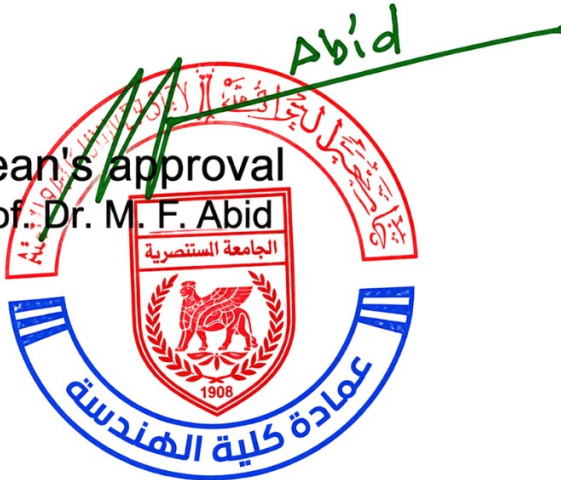
Assist. Lecturer Farah Ghazi Fahad

Signature:

Date:10/2025

Dean's approval

Prof. Dr. M. F. Abid



Date:10/2025

1. Program Vision

To be a leading Cybersecurity Engineering program in Iraq and the region, recognized for academic excellence, applied innovation, and impactful research that strengthens the security and resilience of digital systems and critical infrastructure, while preparing highly qualified graduates who contribute to national and global cyber defense.

2. Program Mission

The Cybersecurity Engineering Program provides rigorous, engineering-based education integrating computing, secure system design, and cybersecurity. It prepares ethical professionals with strong analytical and practical skills, promotes research and innovation to address real-world challenges, strengthens industry partnerships aligned with international standards and workforce needs, and fosters integrity, privacy, risk management, and lifelong learning to support sustainable digital transformation.

3. Program Objectives

1. **Providing Outstanding Educational Programs:** Deliver high-quality education in cybersecurity engineering that equips students with strong foundations and advanced practical skills in areas such as network security, secure systems, cryptography fundamentals, digital forensics, and security operations, preparing them for professional practice and lifelong learning.
2. **Research and Development:** Establish the department as an active center for research and innovation in cybersecurity, including threat detection, secure architectures, cyber-physical and IoT security, incident response, privacy, and resilience, with outcomes that improve the security of national and organizational digital infrastructure.
3. **Building Ethical, Responsible Cyber Professionals:** Promote responsible and lawful cybersecurity practice by strengthening student understanding of ethics, privacy, human rights, and professional standards, ensuring graduates can balance security objectives with societal and legal responsibilities.
4. **Fostering Industrial and Academic Collaboration:** Develop strong partnerships with local and international industry, government, and academic institutions to exchange expertise, deliver joint projects, enhance curriculum relevance, and provide practical training, internships, and employment pathways for students

and graduates.

5. **Developing Practical Security Applications:** Encourage the development of real-world cybersecurity solutions that address modern challenges such as ransomware defense, secure networking, identity and access management, secure software and web systems, cloud security, and protection of critical services through applied projects and laboratories.
6. **Promoting Awareness and Contributing to Society:** Raise cybersecurity awareness through workshops, competitions, seminars, and community initiatives that educate the public on safe digital behavior, privacy protection, and cyber risk, while supporting community and institutional resilience against cyber threats.
7. **Developing National Capabilities:** Prepare national talent capable of strengthening Iraq's cybersecurity capacity by producing graduates who can protect organizations, support digital transformation, contribute to policy and compliance needs, and help grow the knowledge economy through secure and trusted technology adoption.

4. Program Accreditation

There are currently no such provisions, and the department is working to fulfill the requirements for programmatic accreditation.

5. Other external influences

Is there a sponsor for the program? Yes. The Al-Karkh University of Science/ College of Engineering.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	6	12	5.00%	
College Requirements	5	18	7.50%	
Department Requirements	51	210	87.50%	
Summer Training	2 months	N.A.	N.A.	
Other				

* This can include notes whether the course is basic or optional.

7.

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2025-2026 / One	KUS11001	Mathematics I	3	
	KUS11002	Fundamentals of computer science	2	3
	KUS11003	Democracy and Human Rights	2	
	CEN11004	Engineering Drawing	2	3
	CEN11005	Physics	3	
	CYE11006	Biology	3	
	CYE11007	Digital Logic Design	2	3
2025-2026 / two	CYE12008	Mathematics II	3	
	CYE11009	Networks Fundamentals	2	3
	KUS12010	Arabic Language I	2	
	KUS12011	English Language I	2	
	CYE12012	Electrical Circuits Analysis	2	3
	CYE11014	Cybersecurity Fundamentals	3	
	CYE11015	Computer Programming	2	3

8. Expected learning outcomes of the program

Knowledge	
	1. Apply foundational knowledge of mathematics, computer science, networking, electronics/engineering, and cybersecurity principles to analyze, identify, formulate,

	and solve complex cybersecurity problems involving threats, vulnerabilities, attacks, and risks using appropriate analytical, computational, and evidence-based methods. 2. Design, develop, and implement secure systems, networks, and applications that meet technical, functional, security, regulatory, ethical, privacy, and sustainability requirements while addressing real-world cybersecurity challenges. 3. Plan and conduct cybersecurity investigations and evaluations by performing security experiments, collecting and analyzing security data (e.g., logs, network traffic, and digital artifacts), interpreting results, and validating solutions to support threat detection, incident response, and continuous security improvement. 4. Select and effectively use modern cybersecurity technologies, engineering tools, programming environments, testing frameworks, and simulation/virtualization platforms to develop, assess, and validate secure and resilient cybersecurity solutions.
Skills	
	1. Ability to identify, analyze, and respond to cybersecurity threats, vulnerabilities, and attacks using industry-standard tools and techniques. 2. Ability to design, implement, and maintain secure computer systems, networks, and communication infrastructures that meet security and organizational requirements. 3. Ability to use cybersecurity technologies for penetration testing, digital forensics, incident response, risk assessment, and security monitoring to protect

	information assets. 4. Ability to apply ethical principles, legal standards, teamwork, and effective communication in addressing cybersecurity challenges and managing information security within organizations.
Ethics	
	1. Demonstrate ethical responsibility by applying professional codes of conduct, integrity, and accountability in the design, implementation, and management of cybersecurity solutions. 2. Evaluate the ethical, legal, and social implications of cybersecurity practices, ensuring compliance with applicable laws, regulations, and industry standards while protecting privacy and human rights. 3. Make informed ethical decisions when addressing cybersecurity challenges by balancing security requirements, organizational objectives, and societal interests. 4. Promote responsible and sustainable cybersecurity practices through respect for confidentiality, fairness, diversity, and the ethical use of emerging technologies, including artificial intelligence and digital systems.

9. Teaching and Learning Strategies

1. Provide students with comprehensive and detailed explanations of the course content.
2. Engage students in solving scientific and mathematical problems related to the subject matter.
3. Facilitate discussions and interactive dialogues on the concepts and theories associated with the course content.
4. Implement blended learning by integrating online instructional materials

and digital interaction with face-to-face classroom teaching.

5. Use scientific films and educational videos to enhance students' understanding of key concepts.
6. Conduct practical laboratory experiments to reinforce theoretical knowledge through hands-on experience.
7. Provide summer internship opportunities to enable students to gain practical experience and apply the knowledge and skills acquired during their studies.

10. Evaluation methods

1. Daily quizzes
2. Midterm examinations
3. Final examinations
4. Descriptive written assignments
5. Weekly reports on course topics

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Computer Science	Data Processing				1
Assist Prof	Physics	Electronics			1	
Lecturer	Computer Science	Cybersecurity			2	
Lecturer	Computer Science	Data Security			1	
Lecturer	Mathematics	Mathematics				1
Assist Lecturer	Computer Science	Artificial Intelligence			1	
Assist Lecturer	Computer Science	Cybersecurity			1	

Professional Development

Mentoring new faculty members

The academic program aims to prepare newly appointed faculty members across various fields of higher education through:

1. Delivering training programs designed to enhance teaching strategies, course design, and student assessment methods, while also familiarizing faculty members with the university's regulations and electronic learning platforms.
2. Conducting regular performance reviews to identify and build upon areas of strength, as well as to recognize and address areas requiring improvement.
3. Encouraging faculty members to actively participate in professional development programs focused on enhancing teaching competencies and pedagogical skills offered by the university.

Professional development of faculty members

1. The faculty members regularly attend workshops, seminars and certification programs to keep updated on the latest cyber security technologies, standards and engineering practices.
2. Faculty are trained in innovative teaching methodologies, outcome-based education (OBE), active learning, project-based learning and effective student assessment strategies.
3. Faculty are encouraged to engage in partnership with industry, internships or consultancy projects, and obtain professional certification to link the academia and industry.
4. Faculty are supported in conducting applied research, publications in reputable journals and conferences and supervising undergraduate research projects in Cybersecurity Engineering.
5. All faculty members actively engage in regular curriculum review and development to ensure alignment with international industry standards, accreditation standards, and the needs of the cybersecurity industry.
6. Faculty are provided with ongoing training of cybersecurity laboratories, virtual environments, cloud security platforms, cyber ranges, simulation tools, and new technologies to improve hands-on teaching.
7. Faculty participate in quality assurance activities, academic advising, program assessment and leadership development, to enhance the quality of the educational experience, student success, and ongoing program enhancement.

12. Acceptance Criterion

Admission to the Bachelor of Engineering in Cybersecurity program is governed by the regulations and instructions issued by the Ministry of Higher Education and Scientific Research, as well as the admission requirements approved by Al-Turath University. Students are admitted to the College based on their General Secondary Education Examination (Baccalaureate) scores. The number of admitted students is determined in accordance with the department's admission plan and its approved student intake capacity.

13. The most important sources of information about the program

1. Cybersecurity Engineering Department Curriculum.
2. Al-Turath University Handbook.

3. Guidelines of the Ministry of Higher Education and Scientific Research.
4. Academic Program and Course Specifications.

14. Program Development Plan

Update the curriculum to reflect new cybersecurity technology, industry demands, and international certification standards to continuously improve the Cybersecurity Engineering program. Boost industry collaborations for professional certifications, cooperative initiatives, and internships. Increase research possibilities, update cybersecurity labs, and include practical learning via capstone projects and simulations. Encourage faculty growth by collaborating on research and providing training. To enhance program quality, graduate employability, and lifetime learning outcomes, gather input from students, graduates, employers, and outside reviewers on a regular basis.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2025-2026/ One	KUS11001	Mathematics	Basic	✓				✓							
	KUS11002	Fundamental of computer science	Basic	✓	✓	✓		✓	✓	✓		✓			
	KUS11003	Democracy and Human Rights	Basic	✓											
	CEN11004	Engineering Drawing	Basic	✓	✓			✓	✓			✓			
	CEN11005	Physics	Basic	✓	✓			✓							
	CYE11006	Biology	Basic	✓											
	CYE11007	Digital Logic Design	Basic	✓	✓			✓	✓			✓			
2025-2026/ Two	CYE12008	Mathematics II	Basic	✓				✓							
	CYE11009	Networks Fundamentals	Basic	✓	✓			✓	✓			✓			
	KUS12010	Arabic Language	Basic	✓											
	KUS12011	English Language	Basic	✓											
	CYE12012	Electrical Circuits Analysis	Basic	✓	✓				✓						
	CYE11014	Cybersecurity Fundamentals	Basic	✓	✓	✓		✓	✓	✓		✓			
	CYE11015	Computer Programming	Basic	✓				✓				✓			

✓ Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics		Module Delivery
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	KUS11001		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	first	Semester of Delivery	1
Administering Department	Cybersecurity	College	Engineering
Module Leader	Dr Mustafa Jasim	e-mail	Mustafa.md27182@gmail.com
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. To provide a solid foundation in the principles and methods of integral calculus. 2. To develop students' ability to compute indefinite and definite integrals of various functions. 3. To introduce advanced integration techniques and demonstrate their practical uses. 4. To enhance logical and analytical reasoning in mathematical problem solving. 5. To apply integration to real-life problems in geometry, physics, and related fields. 6. To encourage accuracy, clarity, and systematic approaches in mathematical computation. 7. To prepare students for further studies that require calculus-based analysis and modeling.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply substitution and completing-the-square methods to evaluate complex algebraic integrals. 2. Compute and interpret definite integrals to determine the area under curves and other geometric applications. 3. Analyze improper integrals and determine their convergence or divergence. 4. Integrate algebraic, trigonometric, exponential, and logarithmic functions using appropriate techniques. 5. Utilize integration by parts and partial fraction decomposition to simplify and solve advanced integrals. 6. Implement trigonometric substitution and other special methods to evaluate complex integrals involving radicals and trigonometric expressions.

	7. Apply integration techniques to solve real-world problems such as finding volumes of revolution and physical applications in engineering and science.
Indicative Contents المحتويات الإرشادية	1. Fundamental Integration Techniques [10 hrs] • Introduction to integration, basic algebraic integrals, substitution methods, and completing the square. 2. Definite Integrals and Applications [8hrs] • Evaluation of definite integrals and computation of areas under curves. 3. Improper Integrals and Convergence Tests [6hrs] • Integrals over infinite intervals and functions with discontinuities. 4. Integration by Parts [8hrs] • Concepts, examples, and advanced-level applications. 5. Integration of Special Functions [8hrs] • Exponential, logarithmic, and algebraic functions. 6. Trigonometric Integration Techniques [8hrs] • Simple and advanced trigonometric integrals, trigonometric substitution methods. 7. Partial Fraction Decomposition [6hrs]

	- Techniques for decomposing rational functions and integrating their components. 8. Applications of Integration [6hrs] - Volumes of revolution and additional problem-solving applications using integral calculus.
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- Lectures: Providing students with basic mathematical concepts and their practical applications. - Forming discussion groups during lectures to discuss mathematics topics and solve practical problems. - Giving students homework that requires self-explanations in different ways. - Solving problems relevant with mathematical subject.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	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)	5-10	Lec. #2,#4,#6,#8
	Assignments	2	20% (20)	3-12	Lec. #1,#2 #3,#5,#7,#9,#11
	Projects	0	0	0	/
	Reports	1	10% (10)	13	All
Summative assessment	Midterm Exam	1hr	10% (10)	7	Lec. #1-#6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Completing the Square & Substitution Methods
Week 2	Definite Integrals & Area Under Curves
Week 3	Improper Integrals & Convergence
Week 4	Indefinite Integrals of Algebraic Functions
Week 5	Integration by Parts – Advanced Problems
Week 6	Integration by Parts – Concepts and Examples
Week 7	Integration of Advanced Trigonometric Functions
Week 8	Integration of Exponential Functions
Week 9	Integration of Logarithmic Functions
Week 10	Integration of Simple Trigonometric Functions
Week 11	Introduction to Integration & Basic Algebraic Integrals
Week 12	Partial Fraction Decomposition
Week 13	Revision and Problem-Solving
Week 14	Trigonometric Substitution Techniques
Week 15	Volumes of Revolution & Applications

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Thomas' calculus 11 ed. 2004	yes
Recommended Texts	1. Calculus 9 th edition, Anton	yes
Websites	https://mediasace.utah.edu/media/t/0_2eoc2ksc	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fundamentals of Computer Science		Module Delivery
Module Type	B		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	KUS11002		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	1
Administering Department	Department of Cybersecurity	College	College of Engineering
Module Leader	Dr Sarah Ali	e-mail	Saraali30201@gmail.com
		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	/	e-mail	/
Scientific Committee Approval Date		Version Number	1.0

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

Co-requisites module	None	Semester	
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Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. Introduce students to basic computer concepts including hardware, software, and data representation. 2. Provide understanding of the operating system and graphical user interface operations. 3. Develop basic word processing, spreadsheet, and presentation software skills. 4. Introduce the fundamentals of Internet, web browsing, and electronic communication. 5. Provide knowledge of cloud computing and modern digital collaboration tools. 6. Provide knowledge of programming using python language.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand computer hardware components and their functions. 2. Operate common operating systems and navigate through graphical user interfaces. 3. Create and edit documents using word processing software. 4. Design and manage spreadsheets using formulas and functions. 5. Develop and present professional presentations using presentation software. 6. Access and utilize the Internet effectively using web browsers and search engines. 7. Communicate through email and collaborate using cloud-based services. 8. Apply basic cybersecurity and digital ethics principles in computer usage. 9. Program basic codes and make GUIs.
Indicative Contents المحتويات الإرشادية	• Introduction to Computer Concepts Basic definitions, components of a computer, hardware and software overview.[4hrs] • Computer Components CPU, memory, storage devices, input/output units, and peripheral components.[6hrs] • Operating Systems and GUI Types of operating systems, basic commands, and file management operations.[6hrs] • Word Processing Software Creating, formatting, and editing documents using Microsoft Word.[6hrs] • Spreadsheet Software Data entry, formulas, charts, and functions using Microsoft Excel.[7hrs] • Presentation Software Slide design, themes, transitions, and multimedia using PowerPoint.[5hrs] • Internet and Web Browsers LAN/WAN basics, web browsing, search engines, and data access.[4hrs] • Communication Tools Email systems, online collaboration, and cloud-based communication. [3hrs]

	• Cloud Computing and Services Google Workspace, Office 365, and cloud storage usage. [3hrs] • Introduction to Python Programming Installing Python and PyCharm, basic syntax, and simple program execution. [6hrs] • Python Programming Structures Variables, conditions, loops, lists, and basic functions. [6hrs] • Basic Cybersecurity Concepts [2hrs]
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Lecture Discussion Practical Experience Clarification and Ask Questions reflect on what you have learned Research and reports
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب 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	1hr	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 Concepts – Definition of computer, hardware, software, and data representation.
Week 2	Computer Components – CPU, memory, storage, input/output devices, and peripherals.
Week 3	Operating Systems and GUI – Types of operating systems, desktop environment, and file management.
Week 4	Word Processing Software – Creating, formatting, and editing documents using Microsoft Word.
Week 5	Spreadsheet Software – Data entry, formulas, charts, and data analysis using Microsoft Excel.
Week 6	Presentation Software – Slide design, themes, transitions, and multimedia using PowerPoint.
Week 7	Internet and Web Browsers – LAN/WAN basics, search engines, and safe browsing.
Week 8	Communication Tools – Email systems, online collaboration, and digital communication ethics.
Week 9	Cloud Computing and Services – Google Workspace, Office 365, and cloud storage applications.
Week 10	Introduction to Python Programming – Installing Python and PyCharm, understanding syntax and variables.
Week 11	Python Programming Basics – Data types, input/output, and simple calculations.
Week 12	Python Control Structures – Conditional statements and loops.
Week 13	Python Data Structures – Lists, strings, and basic operations.
Week 14	Basic Cybersecurity Concepts – Introduction to Cybersecurity, applications in daily life, and examples

	in Python.
Week 15	Review and Final Preparation – Revision of all topics before final exam.

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	EXP 1: Exploring Computer Hardware and Operating Systems
Week 2	EXP 2: Troubleshooting and System Utilities
Week 3	EXP 3: Using Microsoft Word – Document Creation and Formatting
Week 4	EXP 4: Using Microsoft Excel – Data Entry, Formulas, and Charts
Week 5	EXP 5: Using Microsoft PowerPoint – Slide Design and Presentation
Week 6	EXP 6: Installing Python and Setting Up PyCharm Environment
Week 7	EXP 7: Python Basics – Variables, Data Types, and Input/Output
Week 8	EXP 8: Conditional Statements – if, else, and nested if
Week 9	EXP 9: Loops – for and while structures
Week 10	EXP 10: Lists and Strings – Basic Operations and Manipulation
Week 11	EXP 11: Functions – Definition, Parameters, and Return Values
Week 12	EXP 12: Simple Networking and Internet Use
Week 13	EXP 13: File Handling in Python – Read and Write Operations
Week 14	EXP 14: Mini Project – Creating a Simple Calculator or Grade Sheet using Python and Excel
Week 15	EXP 15: Final Practical Assessment – Review of Word, Excel, and Python Applications

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Brookshear, J. Glenn, Dennis Brylow, and S. Manasa. "Computer science: An overview." (2009).	Yes
Recommended Texts	Patterson, David A., and John L. Hennessy. Computer organization and design ARM edition: the hardware software interface. Morgan kaufmann, 2016. Petzold, Charles. Code: The hidden language of computer	No

	hardware and software. Microsoft Press, 2000.	
Websites	Computer Science YouTube Channels: Channels like "Computerphile," Computer Science," and "MIT Open Courseware.	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جداً	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Human rights		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	KUS11003		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	1
Administering Department	Engineering of Cybersecurity	College	Engineering
Module Leader	Mukhtar Hamid	e-mail	Mukhtar_1999@gmail.com
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Introduce students to the concept and nature of human rights. 2. Understand the historical development of human rights throughout the ages. 3. Distinguish between human rights and other types of rights. 4. Examine human rights in the Abrahamic religions and their impact on society. 5. Identify human rights in international charters and treaties. 6. Understand the role of national legislation in protecting human rights. 7. Study the types of human rights: personal, social, cultural, and economic rights. 8. Identify international, regional, and national safeguards for human rights. 9. Understand the penalties and sanctions resulting from violations of human rights.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define human rights and identify their fundamental characteristics. 2. Explain the historical development of human rights. 3. Distinguish between human rights and other rights in society. 4. Explain the position of human rights in the divine religions. 5. Describe human rights in international charters and treaties. 6. Analyse national legislation for the protection of human rights. 7. Classify human rights into personal, social, cultural, and economic rights. 8. Identify international, regional, and national safeguards for human rights. 9. Explain the legal sanctions for violations of human rights.
Indicative Contents	1. Introduction to Human Rights – Definition and Nature (3

المحتويات الإرشادية	hours)
	• The concept of human rights • Their nature and sources • Distinguishing human rights from other legal and social rights
	2. Historical Development of Human Rights (3 hours) • Historical roots across ancient civilisations • Major intellectual and political transformations • The emergence of the modern perspective on human rights
	3. Human Rights in Divine Religions and International Conventions (4 hours) • Perspectives of the divine religions on human rights • Religious and ethical values for preserving human dignity • The Universal Declaration of Human Rights • The International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights
	4. Human Rights in Domestic Legislation (3 hours) • The status of human rights in national constitutions • Laws relating to the protection of rights and freedoms • The role of legislative, executive, and judicial institutions
	5. Types of Human Rights (Personal, Social, Cultural, and Economic) – (8 hours) • Personal rights: The right to life, freedom, privacy, and security.

	• Social rights: The rights to health, employment, housing, and social security. • Cultural rights: The rights to education, language, and cultural identity. • Economic rights: The rights to property, development, and equal opportunities.
	6. International and Regional Guarantees for Human Rights (4 hours) • The role of the United Nations and the Human Rights Council • International monitoring mechanisms and the protection of human rights • Regional systems: the League of Arab States, the European Union, and the African Union
	7. National Guarantees for the Protection of Human Rights (3 hours) • National institutions (courts, human rights commissions) • Complaint and investigation mechanisms • Administrative and judicial oversight and their role in protecting rights
	Human Rights Violations and Related Sanctions (2 hours) • Forms of human rights violations • Legal responsibility of individuals and states • Sanctions and measures taken in response to violations

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	In this regard, we adopt the following approaches:
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	1. Lectures 2. Discussion 3. Flipped Classroom 4. Case Study
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Definition and Nature of Human Rights
Week 2	Historical Development of Human Rights
Week 3	Characteristics of Human Rights Compared with Other Rights
Week 4	Human Rights in the Revealed Religions
Week 5	Human Rights in International Charters and Conventions
Week 6	Human Rights in Domestic Legislation
Week 7	Personal Human Rights
Week 8	Social Human Rights
Week 9	Cultural Human Rights
Week 10	Economic Human Rights
Week 11	International Guarantees for Human Rights
Week 12	Regional Guarantees for Human Rights
Week 13	Domestic (National) Guarantees for Human Rights
Week 14	Penalties for Violations of Human Rights
Week 15	General Review

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب/ حقوق الانسان (تطورها، مضامينها، حمايتها) د. رياض عزيز هادي.	Yes
Recommended Texts	كتاب/ حقوق الانسان د. حميد حنون.	No
Websites	https://www.noor-book.com/ https://www.un.org/ar/about-us/universal-declaration-of-human-rights https://ar.wikipedia.org/wiki/	

Grading Scheme

مخطط الدرجات

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Drawing		Module Delivery
Module Type	S		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar
Module Code	CEN11004		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level		Semester of Delivery	1
Administering Department	Cybersecurity	College	College of Engineering
Module Leader	Zainab Riyadh	e-mail	Zainab_riyadh@gmail.com
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	/	e-mail	/
Scientific Committee Approval Date		Version Number	1

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

Co-requisites module	None	Semester	
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Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	The module aims to develop students' ability to communicate technical ideas through graphical representation. It covers the fundamentals of engineering drawing, use of instruments, geometric constructions, orthographic and isometric projections, sectional views, and dimensioning. Students will learn to interpret and create machine and assembly drawings following BIS/ISO standards and gain introductory skills in computer-aided drafting (CAD). The course enhances visualization, accuracy, and understanding of engineering components and systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	10. Identify and correctly use engineering drawing tools to create accurate geometric constructions and basic shapes. 11. Apply fundamental drafting techniques to draw lines, circles, tangents, polygons, and divided segments with precision. 12. Use engineering scales and dimensioning standards to add measurements, annotations, and proportional enlargements/reductions. 13. Explain and apply the principles of orthographic projection to produce front, top, and side views of engineering objects. 14. Construct isometric and oblique 3D drawings using 30° and 45° projection angles to visualize objects in three dimensions. 15. Generate or infer missing views by deriving the third projection from two given orthographic projections. 16. Produce complete, accurate technical drawings that meet engineering standards and demonstrate the ability to communicate design ideas effectively.

Indicative Contents المحتويات الإرشادية	1. Introduction to Engineering Drawing [8hrs] - Importance and applications of engineering drawing - Drawing instruments, materials, and sheet layouts - BIS/ISO standards, lines, lettering, and dimensioning
	2. Geometric Constructions [7hrs] - Basic geometrical figures - Tangents, polygons, and curves (ellipse, parabola, hyperbola)
	3. Orthographic Projection [10hrs] - Principles of projection - Projection of points, lines, planes, and solids - Conversion of pictorial to orthographic views
	4. Sectioning of Solids and Development of Surfaces [8hrs] - Types of sectional views - Development of lateral surfaces for solids
	5. Isometric and Perspective Projection [8hrs] - Isometric scales, isometric views, and projections - Perspective projection of simple objects
	6. Dimensioning and Conventional Representations [4hrs] - Dimensioning standards and techniques - Symbols for materials, threads, welds, and surface finish

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- Conducting practical examinations. 2- Short tests. 3- Weekly exercises.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem)	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1- #5 and #5-#10
	Assignments	10	20% (20)	Continuous	All
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	0	0% (0)		
Summative assessment	Midterm Exam	1hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Learn about drawing tools and the concept of drawing
Week 2	Use tools to draw shapes
Week 3	Executing and drawing lines, tangents, circles and drawing polygons.
Week 4	Draw and divide straight lines and draw tangent lines and polygons.
Week 5	learns the dimensional mode in drawing and the knowledge of the scale and the way to reduce and zoom in
Week 6	Writing different types of dimensions
Week 7	Learn the concept of projection and recognize the three levels of projection
Week 8	learns to draw the three projections and how to get out the flip chart
Week 9	Exam
Week 10	Draw the 3D geometric perspective on two 30- and 45-angle lines
Week 11	Draw the 3D geometric perspective on two 30- and 45-angle lines
Week 12	Training in drawing a three-dimensional engineering perspective
Week 13	Training in drawing a three-dimensional engineering perspective

Week 14	The conclusion of the third projection from two known projections
Week 15	Evaluate the students

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Learn about drawing tools and the concept of drawing
Week 2	Use tools to draw shapes
Week 3	Executing and drawing lines, tangents, circles and drawing polygons.
Week 4	Draw and divide straight lines and draw tangent lines and polygons.
Week 5	learns the dimensional mode in drawing and the knowledge of the scale and the way to reduce and zoom in
Week 6	Writing different types of dimensions
Week 7	Learn the concept of projection and recognize the three levels of projection
Week 8	learns to draw the three projections and how to get out the flip chart
Week 9	Exam
Week 10	Draw the 3D geometric perspective on two 30- and 45-angle lines
Week 11	Draw the 3D geometric perspective on two 30- and 45-angle lines
Week 12	Training in drawing a three-dimensional engineering perspective
Week 13	Training in drawing a three-dimensional engineering perspective
Week 14	The conclusion of the third projection from two known projections
Week 15	Evaluate the students

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Reddy, V. K. (2008). <i>Textbook of engineering drawing: Part 1</i>. Bs publications. - Shah, M. B., & Rana, B. C. (2009). <i>Engineering Drawing</i>. Pearson Education India. - practice problems for engineering drawing	Yes
Recommended Texts	- Technical drawing & Solidworks	No

	-Engineering Drawing -practice problems for engineering drawing	
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Biology		Module Delivery
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	CYE11006		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level		Semester of Delivery	1
Administering Department	Cybersecurity	College	Engineering
Module Leader	Anwar Aijel	e-mail	Anwar_2000@gmail.com
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date		Version Number	1

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	This module aims to : 1-To understand life, chemistry and water continued: biological molecules, 2-To recognize cells and membranes 3-To identify Energy, Enzymes and Biological reactions, cellular respiration, photosynthesis 4-To understand cell division: mitosis and miosis: Mendel, Genes and inheritance, genes, chromosomes and human genetics 5-To understand DNA structure, Replication and Organization. From DNA to protein Biotechnology and cell processes and transport (Passive and active)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain fundamental biological concepts and relate them to cybersecurity and biometric systems. 2. Describe cellular structures and their relevance to biological data used in modern authentication technologies. 3. Interpret the structure and function of DNA and genetic information as they apply to identity verification and biometric uniqueness. 4. Analyze the role of proteins, enzymes, and biological molecules in biometric sensing and recognition technologies. 5. Explain major physiological systems (nervous, muscular, sensory) and their connection to biometric signal generation and data acquisition. 6. Compare different human biometric modalities (fingerprint, iris, retina, voice, gait, etc.) based on biological structure and variability.

	7. Evaluate human biological diversity and population genetics and discuss their implications for fairness, accuracy, and bias in biometric systems. 8. Assess privacy, ethical, and security issues associated with the collection, storage, and processing of biological and biometric data. 9. Identify and describe biometric devices, sensors, and technologies based on underlying biological principles. 10. Integrate biological knowledge with cybersecurity concepts to analyze real-world biometric security case studies.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: A- <u>Introduction to Biology</u> Concepts: Life, Chemistry and water, Life, Chemistry and water continued: Biological Molecules, Cells and Membranes, Energy, Enzymes and Biological reactions continued, Cellular respiration, Photosynthesis, Cell division: Mitosis and Miosis: Mendel, Genes and inheritance [20 hrs] B- Genes and DNA Genes, chromosomes and Human Genetics, DNA structure, Replication and Organization, From DNA to protein Biotechnology, Cell processes I- Transport (Passive and active) [10 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Lectures: Interactive lectures will provide theoretical knowledge on optical mineralogy concepts, techniques, and applications. 2. Laboratory Sessions: Hands-on laboratory sessions will allow students to practice using polarized light microscopy and develop skills in mineral identification and interpretation. 3. Case Studies: Analysis of real-world examples and case studies will help students understand the practical applications of optical mineralogy. 4. Independent Research Projects: Students will be encouraged to undertake independent research projects using optical mineralogy techniques to gain practical experience and develop research skills. 5. Group Discussions: Group discussions and peer-to-peer learning will foster collaboration and deeper understanding of optical mineralogy concepts. 6. Assessments: Assessments, including quizzes, laboratory reports, and a final examination, will evaluate students' understanding of theoretical knowledge and their ability to apply optical mineralogy techniques
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Student Workload (SWL) الحمل الدراسي للطالب			
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	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	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)	4,10	LO #1- #3 and #4 - #9
	Assignments	2	20% (20)	Continuous	LO #5 and #12
	Projects / Lab.	----	----	-----	-----
	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	1 hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Biology in the Context of Cybersecurity
Week 2	Cells: Structure, Function, and Relevance to Biometric Systems
Week 3	DNA and Genetic Information: Basics for Biometric Identification
Week 4	Proteins and Enzymes: Biological Molecules in Security Applications
Week 5	Human Physiology Overview: Nervous and Muscular Systems
Week 6	Sensory Systems and Data Acquisition: Vision, Fingerprint, and Voice
Week 7	Skin and Fingerprints: Structure, Formation, and Uniqueness
Week 8	Iris and Retina: Eye Anatomy and Biometric Recognition
Week 9	Voice and Speech: Vocal Anatomy for Voice Authentication
Week 10	Behavioral Biometrics: Gait, Keystroke Dynamics, and Patterns
Week 11	Human Variation and Population Genetics: Implications for Security
Week 12	Biological Data Privacy and Ethics: Storing and Protecting Biometric Data
Week 13	Introduction to Biometric Devices and Sensors
Week 14	Case Studies in Biometric Security Systems

Week 15	Revision and Integration: From Biology to Cybersecurity Applications
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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	Johnson, A. T. (2018). <i>Biology for engineers</i> . CRC Press.	no
Recommended Texts	Jain, A. K., Ross, A. A., Nandakumar, K., & Swearingen, T. (2024). Fingerprint recognition. In <i>Introduction to Biometrics</i> (pp. 75-117). Cham: Springer International Publishing.	no
Websites		

Grading Scheme مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Networks Fundamentals		Module Delivery
Module Type	B		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	CYE11009		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	2
Administering Department	Cybersecurity Engineering Department	College	College of Engineering
Module Leader	Dr. Ali Al-nuaimi	e-mail	ali.al-nuaimi@uoturath.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	/	e-mail	/
Peer Reviewer Name	/	e-mail	/
Scientific Committee Approval Date		Version Number	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. 2. Introduce the fundamental concepts of computer networks and data communication. 3. Define and explain different types of computer networks and network architectures. 4. 5. Explain the principles of networking standards, layered communication models, and the OSI and TCP/IP reference models. Explain the characteristics and functions of transmission media used in data communication. Define and describe the operation and roles of basic networking devices such as hubs, switches, routers, and repeaters.
	6. Explain the basic concepts of switching and routing in computer networks. 7. Introduce the concept of network services and client-server communication models. 8. Develop basic practical skills in network simulation, IP addressing, and connectivity testing using appropriate tools. 9. Introduce the relationship between networking fundamentals and cybersecurity principles, including network vulnerabilities and attack surfaces.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Understand the basic concepts of computer networks and data communication. 1. 2. Recognize different types of networks and distinguish between common network architectures and models. 3. Demonstrate understanding of networking standards and layered communication models, including the OSI and TCP/IP models. 4. Identify transmission media and explain their characteristics and applications in
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	data communication. 5. Recognize basic networking devices and understand the function of each device within a network. 6. Understand the basic principles of switching and routing in computer networks. 7. Demonstrate understanding of network services and client–server communication concepts. 8. Perform basic network simulation tasks, including simple IP configuration and connectivity testing using appropriate tools. 9. Understand the relationship between networking fundamentals and cybersecurity concepts, including basic network vulnerabilities and security considerations.
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Indicative Contents

المحتويات الإرشادية

1. Introduction to Computer Networks:

- What is a computer network?
- Data communication fundamentals.
- Components of a network.
- Role of networks in cybersecurity.

2. Network Types and Scope:

- LAN, MAN, and WAN.
- Internet vs Intranet.
- Real-world network examples.
- Trust boundaries.

3. Network Architectures and Models:

- Client–Server vs Peer-to-Peer.
- Centralized vs Distributed systems.
- Availability and fault tolerance.

4. Fundamentals of Data Communication:

- Data, signals, and noise.
- Bandwidth, throughput, and latency.
- Performance bottlenecks.

5. Networking Standards and Models:

- Why standards exist?
- ISO, IEEE, and IETF.

- Importance of interoperability.

6. OSI Reference Model:

- Layered communication.
- Role of each layer.
- Encapsulation.

7. Midterm Exam.

8. TCP/IP Model and Internet Architecture:

- TCP/IP layers.
- OSI vs TCP/IP.
- Internet communication flow.

9. Transmission Media:

- Guided vs unguided media.
- Twisted pair, fiber, and wireless.
- Media vulnerabilities.

10. Networking Devices:

- Hub, switch, router, and repeaters.
- MAC vs IP.
- Device roles in security.

11. Network Topologies:

- Bus, star, ring, and mesh.
- Fault tolerance.
- Design considerations.

12. Switching and Routing Concepts:

- Frame vs packet.

- Forwarding logic.
- Path selection.

13. Network Services and Applications:

- File servers.
- Web servers.
- Mail servers.
- Service exposure.

15. Networking Foundations for Cybersecurity:

	- CIA triad. - Attack surfaces. - OSI layer vulnerabilities. 15. Course Integration and Review: - OSI + TCP/IP integration. - Concept synthesis. - Exam preparation.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lecture. Discussion. Practical Experience. Clarification and Ask Questions. reflect on what you have learned. reports.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4.13
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 10	LO #1 to #9
	Assignments	1	5% (5)	3 and 12	LO #3 to #11
	Projects / Lab.	1	15% (15)	Continuous	All
	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	1 hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer Networks.
Week 2	Network Types and Scope.
Week 3	Network Architectures and Models.
Week 4	Fundamentals of Data Communication.
Week 5	Networking Standards and Models.
Week 6	OSI Reference Model.
Week 7	Midterm Exam.
Week 8	TCP/IP Model and Internet Architecture.
Week 9	Transmission Media.
Week 10	Networking Devices.

Week 11	Network Topologies.
Week 12	Switching and Routing Concepts.
Week 13	Network Services and Applications.
Week 14	Networking Foundations for Cybersecurity.
Week 15	Course Integration and Review.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Identifying Network Components. (Guided Activity + Diagram Implementation)
Week 2	Lab 2: Network Classification Exercise. (Case Study Analysis)
Week 3	Lab 3: Architecture Comparison. (Structured Analytical Activity)
Week 4	Lab 4: Network Performance Observation. (Hands-on Laptop Implementation)
Week 5	Lab 5: OSI Layer Mapping Workshop. (Conceptual Activity + Diagram Implementation)
Week 6	Lab 6: TCP/IP vs OSI Comparison. (Structured Activity)
Week 7	Lab 7: Review / Practical Clarification.
Week 8	Lab 8: Packet Tracer Familiarization. (Hands-on Implementation)
Week 9	Lab 9: Basic LAN Implementation. (Hands-on Configuration)
Week 10	Lab 10: Switch Behavior Observation. (Simulation Mode Analysis)
Week 11	Lab 11: Basic Routing Implementation. (Hands-on Configuration)
Week 12	Lab 12: Topology & Fault Simulation. (Implementation + Analysis).
Week 13	Lab 13: Client–Server Simulation. (Hands-on Implementation)
Week 14	Lab 14: Network Attack Surface Awareness. (Conceptual + Simulation)
Week 15	Integrated Practical Assessment (Hands-on Final Exercise)

Learning and Teaching Resources				
مصادر التعلم والتدريس				
	Text			Available in the Library?
Required Texts	Fundamentals of Computer Networking (2021).			No (Online)
Recommended Texts	Fundamentals of Computer Networking (FCN).			No (Online)
Websites	Cisco Academy Courses.			
Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	Digital Logic Design	Module Delivery

Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CYE11007			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level		Semester of Delivery	1	
Administering Department	Cybersecurity	College	Engineering	
Module Leader	Dr. Ali Al-nuaimi	e-mail	ali.al-nuaimi@uoturath.edu.iq	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D	
Module Tutor		e-mail		
Peer Reviewer Name		e-mail		
Scientific Committee Approval Date		Version Number	1	

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This module aims to introduce students to the fundamental principles and applications of digital electronics as a foundation for intelligent and robotic systems. It focuses on understanding logic circuits, number

	systems, and digital components used in computing, control, and embedded applications. Students will gain the ability to design, analyze, and implement digital systems that interface with sensors, actuators, and microcontrollers used in AI and robotics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Differentiate between analog and digital systems and explain their roles in modern technologies such as AI and robotics. 2. Perform number conversions and binary arithmetic operations across different numeral systems (binary, octal, decimal, hexadecimal). 3. Identify and analyze the functions of basic logic gates and construct truth tables for simple digital circuits. 4. Apply Boolean algebra laws and theorems to simplify and optimize digital circuit designs. 5. Design and minimize combinational logic circuits using Karnaugh maps (K-Maps) and implement basic circuits such as adders, subtractors, multiplexers, and decoders. 6. Construct and evaluate sequential logic circuits using various flip-flops, counters, and shift registers to perform timing and memory functions. 7. Integrate combinational and sequential circuit concepts to design control systems for practical applications in robotics and automation.
Indicative Contents المحتويات الإرشادية	1. Introduction to Digital Electronics [4hrs] • Basic principles, design methods, and relevance to intelligent and robotic systems.

	2. Analog vs. Digital Signals [4hrs] • Characteristics, distinctions, and applications in modern electronic systems. 3. Number Systems and Binary Arithmetic [8hrs] • Binary, decimal, hexadecimal systems; conversions and arithmetic operations. 4. Logic Gates and Boolean Algebra [8hrs] • Logic functions, truth tables, Boolean expressions, and algebraic simplification. 5. Karnaugh Maps for Logic Optimization [4hrs] • Techniques for circuit minimization and simplification. 6. Combinational Logic Circuits [9hrs] • Adders, subtractors, encoders, decoders, multiplexers, and related components. 7. Sequential Logic Circuits [9hrs] • Flip-flops, registers, counters, timing circuits, and state-based design. 8. Circuit Implementation and Testing [7hrs] • Use of simulation tools and laboratory exercises for validation and troubleshooting.
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	9. Interfacing and Applications in Robotics [7hrs] Integration with sensors, actuators, and microcontrollers for robotic control and AI-driven decision systems.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	7. Lectures: Interactive lectures will provide theoretical knowledge on optical mineralogy concepts, techniques, and applications. 8. Laboratory Sessions: Hands-on laboratory sessions will allow students to practice using polarized light microscopy and develop skills in mineral identification and interpretation. 9. Case Studies: Analysis of real-world examples and case studies will help students understand the practical applications of optical mineralogy. 10. Independent Research Projects: Students will be encouraged to undertake independent research projects using optical mineralogy techniques to gain practical experience and develop research skills. 11. Group Discussions: Group discussions and peer-to-peer learning will foster collaboration and deeper understanding of optical mineralogy concepts. 12. Assessments: Assessments, including quizzes, laboratory reports, and a final examination, will evaluate students' understanding of theoretical knowledge and their ability to apply optical mineralogy techniques

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1- #4 and #6-#9
	Assignments	2	10% (10)	Continuous	LO #5 and #10
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	All
Summative assessment	Midterm Exam	1 hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to Digital and Analog Systems • Difference between analog and digital signals. • Role of digital systems in AI and robotics.

Week 2	Number Systems and Binary Arithmetic • Binary, octal, decimal, and hexadecimal systems. • Number conversions and binary operations.
Week 3	Logic Gates and Truth Tables • Basic logic operations (AND, OR, NOT, NAND, NOR, XOR, XNOR). • Circuit representation and practical examples.
Week 4	Boolean Algebra • Laws and theorems of Boolean algebra. • Simplifying digital circuits using Boolean expressions.
Week 5	Karnaugh Map (K-Map) Simplification • Logic function minimization using K-Maps. • Designing optimized logic circuits.
Week 6	Combinational Logic Circuits – Part 1 • Half and full adders, subtractors. • Basic combinational circuit design.
Week 7	Mid-term Exam
Week 8	Combinational Logic Circuits – Part 2 • Multiplexers, demultiplexers, encoders, and decoders.
	Practical Applications of Combinational Logic • Designing control and decision circuits. • Real-world examples in robotics and AI.
Week 9	Introduction to Sequential Logic Circuits • Basic concepts of memory and timing. • Introduction to latches and flip-flops. •
Week 11	Flip-Flop Types and Applications • SR, JK, D, and T flip-flops. • Edge-triggering and clock behavior. •
Week 12	Sequential Circuits Design • Using flip-flops to design counters and registers. • Timing diagrams and sequence generation. •
Week 13	Counters and Shift Registers • Asynchronous and synchronous counters. • Shift register operation and applications. •
	Sequential Circuits – Applications

Week 14	• Implementing control logic using sequential circuits. • Case studies in robotics and automation. •
Week 15	Review and Final Exam Preparation • Comprehensive course review and practical revision. •

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	• Introduction to the Digital Laboratory Familiarization with lab equipment (breadboard, power supply, logic probes); safety instructions and introduction to digital signals.
Week 2	• Number Systems and Logic Levels Practice binary-to-decimal conversion and verify digital HIGH/LOW levels using simple LED circuits.
Week 3	• Logic Gates – Basic Operations Build and test basic logic gates (AND, OR, NOT, NAND, NOR) using ICs; verify truth tables.
Week 4	• Logic Gates – Combined Circuits Construct compound logic expressions; analyze and test outputs using logic probes or simulation.
Week 5	• Boolean Algebra and Simplification Apply Boolean simplification on given circuits and implement simplified versions using hardware or simulation software (e.g., Logisim).
Week 6	• Karnaugh Map Practice

	Simplify logic functions using K-map methods and compare complexity before and after reduction.
Week 7	Midterm Lab Evaluation Assessment on experiments from Weeks 1–6 (circuit building, analysis, and documentation).
Week 8	Combinational Logic Circuits – Adders/Subtractors Design and implement half adder and full adder/subtractor circuits; verify functionality.
Week 9	Combinational Circuits – MUX and DEMUX Build multiplexer and demultiplexer circuits and explore their data-routing applications.
Week 10	Encoders and Decoders Construct simple encoder and decoder circuits and test their operation using binary inputs.
Week 11	Introduction to Sequential Logic Observe latch and flip-flop behavior using LEDs; understand SR, D, and JK flip-flops.
Week 12	Flip-Flop Timing and Triggering Explore clock signals and triggering (edge vs. level); measure response using oscilloscopes or simulation.
Week 13	Counters Design and test asynchronous and synchronous counters using flip-flops or IC counters.
Week 14	Shift Registers Implement and test serial-in/serial-out and parallel-in/parallel-out shift registers.
Week 15	Final Lab Assessment and Demonstration

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
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Required Texts	2. Floyd, T.L., 2011. Digital fundamentals, 10/e. Pearson Education India.	yes
Recommended Texts	2. Shiva, S.G. ed., 2018. Introduction to logic design. CRC Press.FLOYD, Thomas L., and David BUCHLA. 3. Nixon, M.S., 2015. Digital Electronics: A Primer-Introductory Logic Circuit Design (Vol. 1). World Scientific Publishing Company.	yes
Websites	https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials/	

Grading Scheme مخطط الدرجات				
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