MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Information Technology Basics**	**Module Delivery**
Module Type	**Basic**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**NT101**	
ECTS Credits	**6**	
SWL (hr/sem)	**150**	

Module Level	1	**Semester of Delivery**	1
Administering Department	NT	**College**	CSM
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	18/06/2023	**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 Learning Outcomes مخرجات التعلم للمادة الدراسية	This course introduces students to the essential technical and professional skills required in the field of Information Technology (IT). Through written assignments, students gain an understanding of the operation of computers, computer networks, Internet fundamentals, programming, and computer support. We hope the students also learn about the social impact of technological change and the ethical issues related to technology. Throughout the course, instructional activities emphasize safety, professionalism, accountability, and eefficiency for workers within the eld of IT. Indeed, this course of an Information Technology under Network Department cover the infrastructure model of information technology discipline that deals with the computation of hardware and software, involving other programming languages, which form an essential part of Information Technology. Therefore, the course offers overview in various elds for information technology in terms of computer networks such as Data Science, Cloud Computing, Software Engineering, and also Artificial Intelligence, Machine Learning, Block-chain Engineering, etc. 1. looking forward to taking up a profession in Information Technology can take this course. Comprehension of Computer Systems: Understand the components of a computer system, including hardware and software, and how they interact to perform tasks. 2. Proficiency in Operating Systems: Install, configure, and manage operating systems, perform file management operations, and utilize basic system administration tasks. 3. Knowledge of Networks and Connectivity: Explain network architectures, protocols, and technologies, and demonstrate the ability to set up basic networks, configure IP addresses, and understand data transmission concepts. 4. Practical Skills Application: Utilize hands-on exercises and practical assignments to apply theoretical concepts, including computer hardware installation, software setup, network configuration, and basic programming tasks. 5. Understanding of Professional Ethics and Communication: Identify ethical considerations in the IT field, including privacy, intellectual property, and responsible technology use. Exhibit effective communication skills for collaboration and documentation purposes.
Indicative Contents المحتويات الإرشادية	The indicative contents of the IT basics course for the computer department may include the following topics: 1. Introduction to Information Technology: o Definition and scope of information technology

- Evolution and impact of IT on society and businesses
- Ethical considerations and challenges in IT

2. Computer Systems and Hardware:
   - Components of a computer system (CPU, memory, storage, input/output devices)
   - Computer organization and architecture
   - Digital data representation (binary, hexadecimal)
3. Operating Systems:
   - Functions and types of operating systems (e.g., Windows, macOS, Linux)
   - Process management and multitasking
   - Memory management and virtual memory
   - File systems and file management
4. Software and Applications Development:
   - Programming languages and their characteristics (e.g., Java, Python, C++)
   - Algorithms and problem-solving techniques
   - Introduction to software development methodologies (e.g., waterfall, agile)
5. Networking Fundamentals:
   - Network topologies (e.g., bus, star, mesh)
   - Network protocols (e.g., TCP/IP, HTTP, DNS)
   - Local area networks (LANs) and wide area networks (WANs)
   - Network security and basic concepts of cybersecurity
6. Database Systems:
   - Introduction to database management systems (DBMS)
   - Relational database concepts and design principles
   - Structured Query Language (SQL) for data manipulation and retrieval
   - Basic database administration tasks and data integrity
7. Web Technologies:
   - Basics of web development (HTML, CSS, JavaScript)

	○ Client-server architecture and web application deployment ○ Web design principles and usability considerations ○ Introduction to content management systems (CMS) 8. Information Security: ○ Fundamentals of information security and data protection ○ Common security threats and vulnerabilities ○ Authentication and access control mechanisms ○ Encryption and cryptographic techniques 9. Emerging Technologies: ○ Cloud computing and virtualization ○ Artificial intelligence and machine learning ○ Big data analytics and data science ○ Internet of Things (IoT) and its applications 10. Ethical and Legal Considerations: ○ Ethical issues in IT, including privacy and responsible use of technology ○ Intellectual property rights and copyright laws ○ Cybersecurity laws and regulations ○ Data protection and privacy laws (e.g., GDPR, CCPA)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the IT basics course for the Network department can include a combination of the following: 1. Active Learning: Incorporate activities that engage students actively in the learning process. This can include hands-on exercises, group projects, case studies, and discussions. Encourage students to apply the concepts they learn to real-world scenarios and problems.

	2. Practical Exercises: Provide opportunities for students to practice and apply their knowledge. Assign programming exercises, database design projects, or networking simulations to reinforce understanding and develop practical skills. Offer guidance and feedback during the exercises to facilitate learning. 3. Real-World Examples: Use relevant and relatable examples from various industries and domains to illustrate the application of IT concepts. Demonstrate how technology is used in business processes, healthcare, finance, or other fields to make the concepts more tangible and meaningful. 4. Multimedia Resources: Supplement lectures and readings with multimedia resources such as videos, interactive tutorials, online demonstrations, and virtual labs. Visual and interactive content can help students grasp complex concepts and engage different learning styles. 5. Guest Speakers and Industry Connections: Invite guest speakers from the IT industry or academia to share their experiences, insights, and real-world applications of IT concepts. Establish connections with professionals working in the field to provide students with networking opportunities and industry perspectives. 6. Problem-Solving and Critical Thinking: Emphasize problem-solving and critical-thinking skills throughout the course. Encourage students to analyze and evaluate information, think creatively, and propose solutions to IT-related challenges. Pose thought-provoking questions and scenarios to stimulate discussion and higher-level thinking. 7. Assessment Variety: Use a variety of assessment methods to evaluate students' understanding and mastery of the concepts. This can include quizzes, exams, projects, presentations, and portfolios. Incorporate both individual and group assessments to encourage collaboration and teamwork skills. 8. Current and Emerging Trends: Introduce students to current trends and emerging technologies in the field of information technology. Discuss their impact, potential applications, and challenges. Encourage students to explore and research these topics to stay updated with the evolving IT landscape. 9. Ethical and Legal Considerations: Incorporate discussions and assignments that focus on ethical and legal issues in IT. Promote discussions on responsible use of technology, privacy concerns, intellectual property rights, and cybersecurity ethics. Foster awareness of the ethical implications of IT in society. 10. Continuous Feedback and Support: Provide regular feedback on students' progress, both during in-class activities and through assignments. Offer opportunities for students to seek clarification and ask questions. Create a supportive learning environment that encourages

	open communication and collaboration. These strategies promote active learning, practical application of knowledge, and engagement with the subject matter. They cater to different learning styles and encourage students to develop critical thinking, problem-solving, and communication skills necessary for success in the IT field.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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**	3	21% (21)	5 and 10	All
	Lab.	10	10% (10)	1 - 14	All
	Reports	2	6% (6)	5 and 12	All
	seminar	1	3% (3)	14	LO #5, #8 and #10
Summative	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7

assessment	**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 the basic concepts of Information Technology (IT) and their applications.
Week 2	Understand the structure layers of the infrastructure model of Information technology environment, especially about end-users, operating system, computer network, and storage.
Week 3	Computer Hardware • Components of a computer system • Input and output devices • Computer peripherals and their functions
Week 4	Computer Software • Types of software: system software and application software • Operating systems and their features • Software installation and management
Week 4	Practical Skills - Operating Systems Basic concepts under IT infrastructure model layers • Installation and configuration of operating systems • File management operations • System administration tasks
Week 5	End-users concept underlying infrastructure model
Week 6	Networks and Connectivity-Basic concepts under IT infrastructure model layers • Network architectures: LAN, WAN, WLAN • Network protocols: TCP/IP, Ethernet, Wi-Fi
Week 7	Networks and Connectivity Basic concepts under IT infrastructure model layers • Network architectures: LAN, WAN, WLAN

	• Network protocols: TCP/IP, Ethernet, Wi-Fi
Week 8	Mid term Examination
Week 9	Storage concept underlying infrastructure model
Week 10	Introduction to Data Management Basic concepts under IT infrastructure model layers • Basics of databases and data management systems
Week 11	Introduction to Data Management Basic concepts under IT infrastructure model layers • Structured Query Language (SQL)
Week 12	Introduction to Web Development Basic concepts under IT infrastructure model layers • HTML and CSS fundamentals
Week 13	Introduction to Web Development Basic concepts under IT infrastructure layers • Web page creation and design principles
Week 14	Ethical Considerations Basic concepts under IT infrastructure layers • Ethics in the IT field: privacy, intellectual property, responsible technology use • Professional communication and documentation skills
Week 15	Week 15: Review • Review of key concepts covered throughout the course • Completion of final projects or assignments demonstrating understanding of IT basics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الأسبوعي للمختبر	
	Material Covered
Week 1	Operating System Installation and Configuration o Objective: Enable students to install and configure an operating system. o Activities: Students will install an operating system of their choice (e.g., Windows, Linux) on a virtual machine or physical computer. They will configure settings, create user accounts, and explore basic system

	administration tasks.
Week 2	Introduction to use the terminal of Ubuntu Operating System
Week 3	Introduction to Ubuntu environment.
Week 4	Introduction to the Shell
Week 5	Navigation
Week 6	Navigation
Week 7	Exploring the System
Week 8	Mid term Exanimation
Week 9	Manipulating Files and Directories
Week 10	Permissions
Week 11	Processes
Week 12	Configuration and the Environment
Week 13	Storage Media
Week 14	Networking
Week 15	Networking

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		No
Recommended Texts		
Websites		

Grading Scheme

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Calculus**	**Module Delivery**	
Module Type	**Support**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**NT103**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		

Module Level	1	**Semester of Delivery**	1
Administering Department	NT	**College**	CSM
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 Objectives

أهداف المادة الدراسية

- Understanding Limits: Students should develop a clear understanding of limits and their properties. They should be able to evaluate limits algebraically and graphically and comprehend the concept of continuity.
- Calculating Derivatives: Students should learn to compute derivatives using basic rules, such as the power rule, product rule, quotient rule, and chain rule. They should understand the interpretation of derivatives as rates of change and be able to apply derivatives to solve problems involving optimization, related rates, and approximations.
- Analyzing Functions: Students should be able to analyze and interpret functions using calculus tools. This includes determining intervals of increase and decrease, finding local extrema, identifying points of inflection, and sketching the graph of a function using differentiation.
- Evaluating Integrals: Students should learn to evaluate definite and indefinite integrals. They should understand the concept of antiderivatives, basic integration rules, and techniques such as substitution and integration by parts. They should also be able to apply integrals to solve problems involving area, average value, and basic differential equations.
- Understanding the Fundamental Theorem of Calculus: Students should grasp the concepts behind the Fundamental Theorem of Calculus and its implications. They should be able to use the Fundamental Theorem of Calculus to evaluate definite integrals and relate integrals to accumulation functions.
- Developing Problem-Solving Skills: Students should enhance their problem-solving abilities by applying calculus concepts and techniques to a variety of real-world and mathematical problems. They should develop logical reasoning, critical thinking, and analytical skills to solve calculus problems effectively.
- Enhancing Mathematical Communication: Students should develop the ability to communicate mathematical ideas and solutions clearly and effectively.

	They should be able to express their reasoning, use appropriate mathematical notation, and present their work in a well-organized manner.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the Calculus course for the Networks department, students should be able to demonstrate the following learning outcomes: 1. Knowledge and Understanding: • Demonstrate a solid understanding of fundamental concepts in calculus, including limits, derivatives, and integrals. • Explain the relationship between functions, limits, and continuity. • Apply the concepts of calculus to solve problems related to rates of change, optimization, and approximation. 2. Computational Skills: • Perform algebraic manipulations and simplify expressions involving limits, derivatives, and integrals. • Compute limits of functions and evaluate derivatives using various techniques, such as the power rule, chain rule, and product rule. • Solve problems involving optimization, related rates, and approximations using calculus methods. 3. Application and Modeling: • Apply calculus concepts to real-world scenarios and model various physical and mathematical phenomena. • Interpret and analyze graphs, tables, and equations representing functions and their derivatives. • Use calculus to solve problems in areas such as physics, economics, engineering, and biology. 4. Critical Thinking and Problem-Solving: • Analyze and interpret problems to identify relevant mathematical concepts and apply appropriate calculus techniques. • Develop logical reasoning and problem-solving strategies to solve complex calculus problems. • Evaluate the reasonableness and accuracy of solutions and interpret their implications in practical contexts. 5. Mathematical Communication: • Express mathematical ideas and solutions clearly and accurately using appropriate mathematical language and notation. • Communicate mathematical reasoning and solution processes effectively through written explanations, diagrams, and graphs. • Present and communicate mathematical results in a coherent and organized manner. 6. Mathematical Reasoning and Proof: • Apply logical reasoning and mathematical proof techniques to justify mathematical statements and results in calculus. • Understand and construct mathematical arguments, including proofs of key calculus theorems and properties. • Recognize the importance of mathematical rigor and precision in calculus reasoning. 7. Technology and Calculus Tools: • Utilize technology, such as graphing calculators or computer software, to aid in visualizing and analyzing calculus concepts. • Apply appropriate technological tools to perform numerical computations, graph functions, and solve calculus problems. • Interpret and validate results obtained from technology tools in the context of calculus applications.

Indicative Contents
المحتويات الإرشادية
	The indicative contents of the Calculus course for the computer department may include the following topics:
	• Introduction to Calculus:
	  • Basic concepts of functions, including domain, range, and graphing
	  • Types of functions (polynomial, exponential, logarithmic, trigonometric)
	  • The concept of a limit and its properties
	• Limits and Continuity:
	  • Evaluating limits algebraically and graphically
	  • Determining one-sided and infinite limits
	  • Continuity of functions and its properties
	• Differentiation:
	  • Definition of the derivative and its interpretation as a rate of change
	  • Calculation of derivatives using basic rules (power rule, constant rule, sum and difference rules)
	  • Derivatives of trigonometric, exponential, and logarithmic functions
	  • Higher-order derivatives and their interpretation
	• Applications of Differentiation:
	  • Tangent lines and rates of change
	  • Optimization problems (finding maximum or minimum values)
	  • Related rates problems (finding rates of change of related quantities)
	  • Approximation using differentials and linearization
	• Techniques of Differentiation:
	  • Product rule and quotient rule
	  • Chain rule for composite functions
	  • Implicit differentiation
	  • Derivatives of inverse trigonometric functions
	• Curve Sketching:
	  • Analysis of functions, including intervals of increase/decrease, local extrema, and concavity
	  • Determining asymptotes, intercepts, and symmetry
	  • Sketching the graph of a function using differentiation and critical points
	• Integration:
	  • Antiderivatives and indefinite integrals
	  • Definite integrals and their interpretation as areas
	  • Basic integration rules (power rule, sum and difference rules)
	  • Techniques of integration (substitution, integration by parts)
	• Applications of Integration:
	  • Calculation of areas between curves
	  • Determining the average value of a function
	  • Finding the area of a region bounded by curves
	  • Solving basic differential equations

	• Fundamental Theorem of Calculus:
	  • Statement and application of the Fundamental Theorem of Calculus
	  • Evaluating definite integrals using the Fundamental Theorem of Calculus
	  • Area under a curve and accumulation functions
	• Numerical Methods:
	  • Approximating definite integrals using numerical methods (e.g., midpoint rule, trapezoidal rule)
	  • Simpson's rule for numerical integration
	  • Applications of numerical methods in practical contexts.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the Wireless Sensor Networks course for the Network department can include a combination of the following: 1. Clear Explanation and Examples: Provide clear explanations of calculus concepts, definitions, and theorems. Use relatable examples and step-by-step solutions to illustrate the application of concepts and problem-solving techniques. 2. Active Learning: Engage students in active learning experiences through in-class activities, group discussions, and problem-solving exercises. Encourage students to actively participate in the learning process by asking questions, working through problems, and explaining their reasoning. 3. Visual Representations: Utilize visual aids, such as graphs, diagrams, and animations, to illustrate calculus concepts. Visual representations can help students visualize functions, understand the geometric interpretation of calculus concepts, and grasp complex ideas more easily. 4. Real-world Applications: Relate calculus concepts to real-world applications to make them more meaningful and relevant to students. Show examples of how calculus is used in various fields, such as physics, economics, engineering, and biology, to solve practical problems and make predictions. 5. Practice and Feedback: Provide ample opportunities for students to practice solving calculus problems. Assign homework exercises, practice quizzes, and problem sets to reinforce understanding and develop problem-solving skills. Offer constructive feedback on student work to guide their learning and address common mistakes. 6. Technology Integration: Integrate technology tools, such as graphing calculators, mathematical software, or online interactive resources, to aid visualization, exploration, and computation in calculus. Demonstrate how technology can be used to enhance understanding and solve complex problems efficiently. 7. Conceptual Understanding: Emphasize the development of conceptual understanding alongside procedural skills. Encourage students to reason

	and explain concepts, connections, and theorems rather than relying solely on memorization and algorithms. 8. Collaborative Learning: Promote collaborative learning environments by incorporating group activities, peer discussions, and projects. Encourage students to work together, exchange ideas, and explain concepts to their peers. Collaborative learning can enhance problem-solving skills, critical thinking, and communication. 9. Formative Assessment: Use formative assessment strategies, such as quizzes, class discussions, and concept-check questions, to monitor student progress and identify areas of difficulty. Provide timely feedback to address misconceptions and guide further learning. 10. Office Hours and Support: Offer regular office hours and additional support sessions to provide students with opportunities for individual or small-group consultations. Address individual questions, clarify concepts, and provide personalized guidance to students who may require extra assistance.

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	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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**	5	22% (22)	5 and 10	LO #1, #2 and #10, #11
	Assignments	5	9% (9)	2 and 12	LO #3, #4 and #6, #7
	Class Assignment	5	5% (5)	Continuous	All
	Report	1	6% (6)	13	LO #5, #8 and #10
Summative	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7

assessment	**Final Exam**	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	• General Review: Real number and their properties, intervals, inequalities, Absolute value with its properties.
Week 2	• The Real Function and its graphs, domain and range.
Week 3	• Limits and continuity: definition, theorems, properties, types of limits.
Week 4	• Derivative of function: Theory of derivative, higher order derivative, Implicit derivative, Chain rule.
Week 5	• The integral: definite and indefinite integrals and applications.
Week 6	• Transcendental Functions: Exponential Function, Logarithmic Function with derivatives and integrals
Week 7	• Trigometric Function, Inverse Trigometric Function with derivatives and integrals
Week 8	• Mid – Term Examination
Week 9	• Matrices: definition, types and their operations
Week 10	• Determinants: definition, properties and applications, The Cofactor and the Inverse of matrix by Cofactor, Grammar's method
Week 11	• Laplace transformation: definition, examples
Week 12	• Inverse Laplace transformation: definition, examples
Week 13	• Series: definition, Taylor and Maclaurin series
Week 14	• Fourier series
Week 15	• Review the Course

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		No

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Logic Design Fundamentals**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**NT104**		
ECTS Credits	**7**		
SWL (hr/sem)	**175**		

Module Level	1	**Semester of Delivery**	1
Administering Department	NT	**College**	CSM
Module Leader	Name	**e-mail**	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	18/06/2023	**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	1. Understand the Basics of Digital Logic: Familiarize students with the fundamental concepts of digital logic, including binary number systems, logic gates, and Boolean algebra. 2. Learn Combinational Logic Design: Enable students to design and analyze combinational logic circuits using logic gates, multiplexers, decoders, and encoders. Develop skills in simplifying Boolean expressions and implementing logic functions. 3. Explore Sequential Logic Design: Introduce students to sequential logic circuits, including flip-flops, registers, and counters. Teach them to design and analyze sequential circuits using state diagrams and transition tables. 4. Develop Skills in Boolean Algebra Manipulation: Teach students the principles of Boolean algebra and logic simplification techniques, including Boolean laws, De Morgan's theorem, and Karnaugh maps. Enable them to simplify complex Boolean expressions. 5. Gain Proficiency in Circuit Analysis and Simulation: Provide students with the ability to analyze and simulate digital circuits using appropriate software tools. Help them understand the behavior of logic circuits and validate their designs. 6. Apply Design Methodologies: Introduce students to structured design methodologies for digital circuits, including the concept of hierarchical design, module reuse, and design documentation practices. 7. Foster Problem-Solving and Critical Thinking Skills: Encourage students to apply logical reasoning and critical thinking in solving complex problems related to digital logic design. Develop their ability to break down problems into smaller components and apply appropriate design techniques. 8. Enhance Practical Skills through Lab Exercises: Provide hands-on lab exercises where students can design, implement, and test digital logic circuits using hardware components and/or digital simulation software. Reinforce

	theoretical concepts through practical application. 9. Foster Collaboration and Communication Skills: Promote teamwork and effective communication skills through group projects and presentations. Encourage students to collaborate on circuit design and problem-solving activities.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completing the course, students should be able to: 1. Understand the fundamental concepts of digital logic design, including binary number systems, logic gates, and Boolean algebra. 2. Comprehend the principles and characteristics of combinational and sequential logic circuits. 3. Explain the behavior and operation of various digital components, such as flip-flops, registers, and counters. 4. Understand the different types of memory devices and programmable logic devices. 5. Design and implement combinational logic circuits using logic gates, multiplexers, decoders, and encoders. 6. Simplify Boolean expressions and optimize logic functions using Boolean algebra and logic simplification techniques. 7. Design and analyze sequential logic circuits using state diagrams, transition tables, and timing diagrams. 8. Implement digital circuits using programmable logic devices (PLDs) and understand their programming and configuration. 9. Apply logical reasoning and critical thinking skills to solve problems related to digital logic design. 10. Design, implement, and test digital logic circuits using hardware components and/or digital simulation software. 11. Use appropriate software tools for circuit simulation, validation, and analysis. 12. Work effectively in teams to collaboratively design and implement digital logic circuits. 13. Collaborate and contribute to group projects and discussions related to digital logic design.
Indicative Contents المحتويات الإرشادية	The following are indicative contents that may be covered in the course: 1. Introduction to Digital Logic: - Number systems: binary, decimal, octal, and hexadecimal - Boolean algebra: logic operators, truth tables, and laws - Logic gates: AND, OR, NOT, XOR, NAND, NOR, and XNOR gates 2. Combinational Logic Design: - Combinational circuits: design and analysis - Boolean functions: expressions, canonical forms, and simplification techniques - Karnaugh maps: truth table to K-map conversion and simplification - Implementation of combinational circuits using logic gates

	3. Combinational Circuits: - Multiplexers: operation, design, and applications - Demultiplexers: operation, design, and applications - Encoders: operation, design, and applications - Decoders: operation, design, and applications 4. Sequential Logic Design: - Flip-flops: SR, D, JK, and T flip-flops

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the Network department can include a combination of the following: 11. Lectures: Engage students through informative lectures that cover theoretical concepts and provide an overview of key topics. Use multimedia resources, visuals, and real-world examples to enhance understanding. 12. Hands-on Labs: Provide practical lab sessions where students can apply their knowledge and skills acquired in lectures. These labs can involve hardware assembly, software installation, network configuration, programming exercises, and troubleshooting. 13. Group Discussions and Collaborative Learning: Encourage group discussions and collaborative activities to foster interaction and knowledge sharing among students. Assign group projects or case studies that require teamwork and problem-solving. 14. Guest Speakers and Industry Experts: Invite guest speakers from the industry to share their experiences, insights, and the latest trends in the IT field. This can provide students with a real-world perspective and inspire them to explore various career paths. 15. Online Resources and Multimedia: Utilize online resources, interactive tutorials, and multimedia materials to supplement learning. This can include video lectures, online quizzes, virtual labs, and interactive modules. 16. Assignments and Projects: Assign individual and group projects that require students to apply their knowledge and skills to solve real-world problems or complete practical tasks. This promotes critical thinking, problem-solving, and practical application of concepts. 17. Assessments and Feedback: Conduct regular assessments, quizzes, and examinations to evaluate students' understanding of the course material. Provide timely and constructive feedback to help students identify areas of improvement. 18. Online Discussion Forums and Communication Platforms: Establish

	online discussion forums or communication platforms where students can ask questions, share resources, and engage in discussions outside of the classroom.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	21% (21)	5 and 10	LO #1, #2 and #10, #11
	Lab.	10	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Assignments	3	6% (6)	Continuous	All
	Report	1	3% (3)	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 Digital Logic Design - Digital logic levels and signals
Week 2-3	Introduction to Number systems - Binary - Decimal - Octal

	- Hexadecimal
Week 4-5	Introduction to logic gates and truth table (AND, OR, NOT, NAND, NOT, EX-OR, and EX-NOR)
Week 6	Boolean Algebra - Boolean variables and expressions - Boolean laws and theorems
Week 7	Simplification of Boolean expressions
Week 8-9	Combinational Logic Gate Circuits and truth tables
Week 10	Designing and analyzing combinational circuits
Week 11	Multiplexers and De-multiplexers
Week 12	Karnaugh maps and simplification techniques
Week 13	Arithmetic Circuits - Binary addition and subtraction circuits
Week 14	Binary-coded decimal (BCD) and binary-to-BCD conversion
Week 15	Flip-Flops

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Logic Gates (AND, OR,NOT, NAND, NOR, EX-OR, and EX-NOR)
Week 2	Construct and verify the truth tables for basic logic gates (AND, OR, NOT).
Week 3	Build logic gate circuits using breadboards and test their functionality.
Week 4	Boolean Algebra and Logic Simplification - Simplify Boolean expressions using Boolean algebra laws and theorems.
Week 5	Implement simplified expressions using logic gates and verify the results.
Week 6-7	Combinational Logic Circuits - Design and implement a half-adder circuit using logic gates. - Build a full-adder circuit and test its functionality.
Week 8	- Design and construct a 4-bit binary adder-subtractor circuit. - Build a BCD adder circuit and verify its functionality.
Week 9-10	Combinational Logic Design - Design and build a 4-bit binary-to-BCD converter using combinational logic.
Week 11	- Construct and verify the functionality of a 4-bit magnitude comparator.
Week 12-13	Multiplexers and Decoders 1. Build a 4-to-1 multiplexer and test its operation using different input combinations. 2. Design and construct a 3-to-8 decoder using basic logic gates.

Week 14-15	Sequential Logic Circuits - Construct and verify the functionality of a D flip-flop using basic components.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Select a comprehensive logic design textbook that covers the fundamental concepts, principles, and techniques of digital logic design. Examples include "Digital Design" by M. Morris Mano and Michael D. Ciletti or "Digital Logic and Computer Design" by M. Morris Mano.	**Yes**
Recommended Texts	"Digital Design" by M. Morris Mano and Michael D. Ciletti **or** "Digital Logic and Computer Design" by M. Morris Mano	
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**English 1**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM102**		
ECTS Credits	**2**		
SWL (hr/sem)	**50**		

Module Level	1	**Semester of Delivery**	1
Administering Department	NT	**College**	CSM
Module Leader	Name	**e-mail**	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		**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. Language Proficiency: Develop basic language proficiency in English, including listening, speaking, reading, and writing skills. 2. Grammar: Understand and apply basic grammatical structures, including parts of speech, sentence formation, verb tenses, subject-verb agreement, and basic sentence patterns. 3. Vocabulary Building: Expand vocabulary through learning and practicing common words, synonyms, antonyms, idioms, phrasal verbs, and collocations. 4. Reading Comprehension: Improve reading skills by understanding main ideas, supporting details, making inferences, and analyzing texts of

	varying complexity. 5. Listening Comprehension: Enhance listening skills by understanding spoken English, including conversations, lectures, and presentations, and extracting key information. 6. Speaking Skills: Develop oral communication skills through practicing pronunciation, participating in conversations, giving presentations, and expressing opinions. 7. Writing Skills: Enhance writing abilities by practicing sentence construction, paragraph development, descriptive writing, narrative writing, and basic essay structure. 8. Cultural Awareness: Gain cultural understanding and appreciation through exposure to English-language literature, media, and diverse perspectives. 9. Study Skills: Develop effective study strategies, note-taking techniques, and time management skills for English language learning. 10. Assessment: Demonstrate language proficiency through quizzes, tests, presentations, writing assignments, and class participation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the English 1 course for the Networks department, students should be able to demonstrate the following learning outcomes: 1. Demonstrate basic proficiency in listening, speaking, reading, and writing skills in English. 2. Apply grammatical structures accurately to communicate effectively in written and spoken English. 3. Expand their vocabulary and use appropriate words and phrases in various contexts. 4. Comprehend and analyze written texts of different genres, including articles, short stories, and essays. 5. Understand spoken English in various situations, such as conversations, lectures, and presentations. 6. Engage in effective verbal communication, express opinions, and participate in discussions. 7. Write clear and coherent sentences, paragraphs, and short essays using proper organization and language conventions. 8. Develop cultural awareness and sensitivity to different cultural perspectives reflected in English literature and media. 9. Apply effective study skills, including note-taking, time management, and self-assessment techniques. 10. Demonstrate language proficiency through assessments, including quizzes, exams, presentations, and writing assignments.
Indicative Contents المحتويات الإرشادية	The indicative contents for the English 1 course may include the following topics: 1. Introduction to English Language: o Basic grammar rules and sentence structure o Parts of speech: nouns, verbs, adjectives, adverbs, etc. o Simple sentence construction and punctuation 2. Vocabulary Building:

	○ Commonly used words and expressions ○ Word formation: prefixes, suffixes, and root words ○ Synonyms, antonyms, and idiomatic expressions 3. Reading Comprehension: ○ Developing reading skills through texts of varying difficulty ○ Understanding main ideas, supporting details, and inference ○ Practicing skimming and scanning techniques 4. Writing Skills: ○ Paragraph writing: topic sentences, supporting details, and concluding sentences ○ Sentence structure and paragraph coherence ○ Developing basic writing skills: descriptive, narrative, and expository writing 5. Listening Skills: ○ Listening to and understanding spoken English in different contexts ○ Note-taking and summarizing information from spoken sources ○ Developing listening comprehension through audio materials and dialogues 6. Speaking Skills: ○ Basic conversation skills: greetings, introductions, and simple dialogues ○ Pronunciation and intonation practice ○ Participating in group discussions and oral presentations 7. Cultural Awareness: ○ Exploring English-speaking countries and their cultures ○ Understanding cultural differences and norms in communication 8. Language Practice and Activities: ○ Role plays, pair work, and group activities to practice language skills ○ Language games, quizzes, and interactive exercises for reinforcement These indicative contents provide a general overview of the topics and skills covered in the English 1 course, focusing on developing foundational language skills in reading, writing, listening, and speaking.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for the English 1 course aim to create an engaging and interactive learning environment where students can actively participate and develop their language skills. Some effective strategies include: 1. Communicative Approach: Emphasizing the use of English for meaningful communication, allowing students to practice and apply language skills in real-life situations through role plays, pair work, and group activities.

	2. Task-based Learning: Providing students with practical tasks and projects that require them to use English to achieve specific goals, fostering critical thinking, problem-solving, and collaboration skills. 3. Multi-modal Learning: Integrating various learning resources such as textbooks, audio recordings, videos, and online materials to cater to different learning styles and enhance comprehension and language acquisition. 4. Scaffolded Instruction: Breaking down complex language concepts into manageable steps, providing clear instructions, and gradually increasing the level of difficulty to ensure students' understanding and progress. 5. Formative Assessment: Implementing regular quizzes, assignments, and in-class activities to gauge students' understanding and provide timely feedback for improvement. 6. Technology Integration: Utilizing digital tools and resources, such as language learning apps, online dictionaries, and multimedia platforms, to enhance language practice, vocabulary acquisition, and listening comprehension. 7. Authentic Materials: Exposing students to authentic English materials, such as news articles, short stories, and videos, to develop their reading and listening skills and expose them to real-world language use. 8. Error Correction and Feedback: Providing constructive feedback and error correction to guide students in improving their language accuracy and fluency, both in written and spoken English. 9. Cultural Immersion: Incorporating cultural activities, discussions, and projects to promote intercultural understanding and awareness of different English-speaking cultures. By employing these strategies, the English 1 course aims to create an engaging and effective learning environment that fosters students' language proficiency, confidence, and communication skills in English.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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 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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Week 1: Introduction to English 1, course overview, and language assessment.
Week 2	Week 2: Grammar: Parts of speech, sentence structure, and basic sentence patterns.
Week 3	Week 3: Vocabulary Building: Basic word formation, synonyms, antonyms, and context clues.
Week 4	Week 4: Reading Comprehension: Developing reading strategies, understanding main ideas, and supporting details.
Week 5	Week 5: Listening Comprehension: Listening for information, note-taking, and understanding spoken dialogues.
Week 6	Week 6: Speaking Skills: Introducing oneself, asking and answering questions, and participating in simple conversations.
Week 7	Week 7: Writing Skills: Sentence construction, paragraph development, and descriptive writing.
Week 8	Week 8: Grammar: Verb tenses, subject-verb agreement, and verb forms.
Week 9	Week 9: Vocabulary Expansion: Idioms, phrasal verbs, and collocations.
Week 10	Week 10: Reading Comprehension: Inferring meaning, making predictions, and analyzing texts.
Week 11	Week 11: Listening Comprehension: Identifying main ideas, understanding specific details, and listening for inference.
Week 12	Week 12: Speaking Skills: Giving opinions, expressing agreement/disagreement, and presenting short talks.
Week 13	Week 13: Writing Skills: Narrative writing, writing emails, and basic essay structure.
Week 14	Week 14: Grammar: Modals, conditionals, and reported speech.
Week 15	Week 15: Review and Assessment: Recap of course topics, practice exercises, and final assessment.

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		
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Democracy and Human Rights**	**Module Delivery**	
Module Type	**S**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM104**		
ECTS Credits	**2**		
SWL (hr/sem)	**50**		
Module Level	1	**Semester of Delivery**	1
Administering Department	NT	**College**	CSM
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		**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The course aims to introduce human rights in order to defend human dignity and contribute to changing human life for the better regarding: change in values and feelings - and change in behavior, as well as promoting the idea of social justice and strengthening the link between the individual and the group and the state and its institutions, and developing monitoring skills Violations, dealing with violators, supporting the skills of understanding human rights issues, in addition to enhancing ways to participate in public affairs - citizenship.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Human rights are a set of fundamental entitlements and freedoms that are inherent to all individuals, regardless of their nationality, race, gender, religion, or any other characteristic. 2. They are based on the principles of dignity, equality, and respect for the inherent worth and value of every human being.
Indicative Contents المحتويات الإرشادية	Human rights are universal, meaning they apply to everyone, everywhere, without discrimination. They encompass civil, political, economic, social, and cultural rights, and are often codified in international and national legal frameworks. Civil and political rights include the right to life, liberty, and security of person; freedom of expression, assembly, and association; the right to a fair trial; and protection against torture, arbitrary arrest, and discrimination.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Civil and political rights include the right to life, liberty, and security of person; freedom of expression, assembly, and association; the right to a fair trial; and protection against torture, arbitrary arrest, and discrimination.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem)	**50**		

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	جذور حقوق الانسان وتطورها في التاريخ البشري
Week 2	حقوق الانسان: التحديد والتعريف والضمانات
Week 3	محتوى: الحريات العامة
Week 4	النظرية العامة للحريات العامة
Week 5	النظام القانوني للحريات العامة
Week 6	ضمانات الحرية العامة
Week 7	ضمانات الحرية العامة
Week 8	مفهوم المساواة
Week 9	مبادئ الحريات العامة تفصيليا
Week 10	حرية الأمن والشعور والاطمئنان
Week 11	حريات الفكرية
Week 12	قانون الفصل بين الدولة والكنيسة
Week 13	حرية العمل
Week 14	حرية التجارة والصناعة
Week 15	حرية التجارة والصناعة المبحث الأول: الاحزاب السياسية والحريات العامة

	المبحث الثاني: الحريات العامة في العالم الثالث المبحث الثالث:التقدم العلمي والتقني والحريات العامة

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	د.امير عبد العزيز، حقوق الأنسان في الأسلام	NO
Recommended Texts	نسرين مجد عبده حسونة،2015 ، حقوق الأنسان... المفهوم والخصائص والتصنيفات والمصادر	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
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Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	**Problems Solving & Programming II**	**Module Delivery**
Module Type	**Core**	☒ **Theory**

Module Code	**NT107**			☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	NT		**College**	CSM	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	R		**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			**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	NT102	**Semester**	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. Understanding Object-Oriented Programming (OOP) Concepts:
    1. Define and explain the fundamental concepts of OOP, such as classes, objects, encapsulation, inheritance, and polymorphism.
    2. Understand the benefits and advantages of using OOP in software development.
2. Mastering C++ Syntax and Language Features:
    1. Acquire a solid understanding of C++ syntax, data types, control structures, functions, and basic input/output operations.
    2. Familiarize students with C++ libraries, particularly the Standard Template Library (STL).
3. Implementing Classes and Objects in C++:

	1. Learn how to define classes, create objects, and understand the relationship between classes and objects. 2. Understand the concepts of constructors, destructors, and member functions. 4. Encapsulation and Data Hiding: 1. Understand the principles of encapsulation and data hiding to create robust and maintainable code. 2. Implement access specifiers (public, private, protected) to control the visibility of class members. 5. Inheritance and Polymorphism: 1. Understand the concept of inheritance and its role in code reuse and extensibility. 2. Implement inheritance relationships and demonstrate knowledge of base and derived classes. 3. Learn about polymorphism and the use of virtual functions to achieve runtime polymorphism. 6. Advanced C++ Features: 1. Explore advanced features of C++, such as templates, operator overloading, and exception handling. 2. Understand smart pointers and memory management techniques. 7. Object-Oriented Design Principles: 1. Learn and apply key design principles, such as SOLID (Single Responsibility, Open-Closed, Liskov Substitution, Interface Segregation, Dependency Inversion) and DRY (Don't Repeat Yourself). 2. Understand the importance of designing reusable, modular, and maintainable code. 8. Practical Application and Problem-Solving: 1. Apply object-oriented concepts and C++ programming skills to solve real-world problems. 2. Design and implement larger projects using object-oriented design principles. 9. Debugging and Testing: 1. Develop skills in debugging C++ code and troubleshooting common errors. 2. Learn and apply effective testing techniques to ensure code correctness. 10. Collaboration and Software Development Best Practices: 1. Develop skills in collaborative software development, including version control systems (e.g., Git) and team-based coding practices. 2. Understand the importance of writing clean, readable, and well-documented code.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completing the course, students should be able to: 1. Knowledge and Understanding: 1. Demonstrate a solid understanding of the fundamental concepts of object-oriented programming, including classes, objects, inheritance, polymorphism, encapsulation, and data hiding. 2. Explain the benefits and advantages of using object-oriented programming in software development.

	3. Understand the syntax, language features, and libraries of C++, particularly the Standard Template Library (STL). 2. Programming Skills: 1. Develop proficiency in writing C++ code using appropriate syntax, data types, control structures, functions, and input/output operations. 2. Implement classes and objects in C++ and apply object-oriented design principles to create robust and maintainable code. 3. Utilize inheritance and polymorphism to achieve code reuse, extensibility, and runtime flexibility. 4. Demonstrate proficiency in advanced C++ features, such as templates, operator overloading, and exception handling. 5. Apply debugging techniques to identify and resolve errors in C++ code. 3. Problem-Solving and Application: 1. Analyze real-world problems and design appropriate solutions using object-oriented programming principles. 2. Apply object-oriented design techniques to model and solve complex software problems. 3. Develop and implement larger projects using object-oriented programming concepts and practices. 4. Use appropriate testing techniques to ensure code correctness and reliability. 4. Design and Documentation: 1. Design software solutions using object-oriented analysis and design techniques. 2. Apply software engineering principles to create well-designed, modular, and reusable code. 3. Write clear and well-documented code that follows established coding standards. 4. Document and communicate the design and functionality of software solutions effectively. 5. Collaboration and Professionalism: 1. Work effectively in teams to develop software solutions, utilizing version control systems and collaborative coding practices. 2. Demonstrate professionalism, ethical behavior, and effective communication skills in a software development context. 3. Apply software development best practices, including code reviews, testing, and project management techniques.
Indicative Contents المحتويات الإرشادية	11. Introduction to Object-Oriented Programming (OOP): o Overview of procedural programming vs. object-oriented programming. o Key concepts of OOP: classes, objects, encapsulation, inheritance, and polymorphism. o Benefits and advantages of using OOP in software development. 12. Introduction to C++: o Basics of C++ programming language: syntax, data types, control structures, functions.

	○ Input/output operations using streams. ○ Pointers and memory management. 13. Classes and Objects in C++: ○ Defining classes and objects. ○ Member variables and member functions. ○ Constructors and destructors. ○ Access specifiers: public, private, and protected. ○ Encapsulation and data hiding. 14. Inheritance and Polymorphism: ○ Inheritance hierarchy and base/derived classes. ○ Overriding member functions. ○ Virtual functions and dynamic polymorphism. ○ Abstract classes and pure virtual functions. ○ Polymorphism with pointers and references. 15. Advanced Topics in C++: ○ Templates and generic programming. ○ Operator overloading. ○ Exception handling. ○ Smart pointers and memory management. 16. Object-Oriented Design Principles: ○ SOLID principles (Single Responsibility, Open-Closed, Liskov Substitution, Interface Segregation, Dependency Inversion). ○ Design patterns: factory, observer, strategy, etc. ○ Designing and implementing reusable and modular code. 17. Standard Template Library (STL): ○ Overview of STL containers: vectors, lists, maps, etc. ○ STL algorithms: sorting, searching, etc. ○ Iterators and generic algorithms. 18. File Handling and Input/Output Streams: ○ Reading from and writing to files. ○ Input/output streams and stream manipulators. 19. Software Development Practices: ○ Debugging techniques and tools. ○ Testing and test-driven development. ○ Version control systems (e.g., Git) and collaborative coding practices. 20. Practical Application and Projects: ○ Implementing small to medium-sized projects using object-oriented principles and C++. ○ Applying object-oriented design techniques to solve real-world problems. ○ Project management and documentation.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the IT basics course for the Network

	department can include a combination of the following: 19. Hands-on Programming Assignments: Provide students with regular programming assignments that require them to apply object-oriented concepts in C++. These assignments should progressively increase in complexity to reinforce their understanding and skills. 20. Project-Based Learning: Assign larger projects that allow students to design and implement software solutions using object-oriented principles. These projects should simulate real-world scenarios and require students to apply their knowledge in a practical context. 21. Code Reviews and Peer Feedback: Encourage students to review and provide feedback on each other's code. This promotes collaboration, exposes students to different coding styles, and helps them learn from each other's approaches. 22. Interactive Coding Sessions: Conduct interactive coding sessions where students can participate in live coding exercises or solve programming problems together as a class. This allows for immediate feedback and discussion, fostering active learning. 23. Use of Visualizations and Diagrams: Utilize visual aids such as diagrams, UML (Unified Modeling Language) representations, and flowcharts to illustrate object-oriented concepts and relationships. Visualizations help students grasp abstract concepts and improve their understanding of class hierarchies and interactions. 24. Code Walkthroughs and Examples: Walkthrough well-commented code examples to demonstrate the implementation of various object-oriented concepts in C++. This helps students understand how to apply these concepts in practice and promotes good coding practices. 25. Classroom Discussions and Debates: Engage students in discussions and debates on topics related to object-oriented programming. Encourage critical thinking and analysis of different design choices, design patterns, and trade-offs in software development. 26. Guest Lectures and Industry Insights: Invite industry professionals or experts to deliver guest lectures, sharing their experiences and insights on object-oriented programming in the real world. This exposes students to practical applications of the concepts they are learning and provides valuable industry perspectives. 27. Online Resources and Tutorials: Share supplementary online resources, tutorials, and interactive coding platforms that allow students to practice and reinforce their learning outside of the classroom. Online resources can include coding challenges, tutorials, and videos that provide additional explanations and examples. 28. Assessments and Feedback: Provide regular assessments, such as quizzes and exams, to gauge students' understanding of object-oriented programming concepts in C++. Provide constructive feedback on their work to guide their learning and improvement.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Review to the Introduction to Problem Solving and Programming I
Week 2-3	Structure Compound Data types
Week 4-5	String Manipulation
Week 6	Dynamic Memory Allocation
Week 7-8	Files
Week 9	Mid Term Examination

Week 10	Exception Handling
Week 11-14	Prepare Mini Project
Week 15	Revision and Review

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Week 1: Review of Introduction to Problem Solving and Programming I • Recap of problem-solving techniques and programming concepts covered in the previous course • Review exercises and discussions to reinforce the foundational knowledge
Week 2-3	Week 2 - 3: Structure Compound Data Types • Introduction to structure data types in programming • Understanding how to define and use structures in C++ • Hands-on exercises to practice working with structures
Week 4-5	Week 4-5: String Manipulation • Exploring string data types and their manipulation in C++ • String functions and operations • Practical exercises and projects involving string manipulation
Week 6	Week 6: Dynamic Memory Allocation • Understanding dynamic memory allocation in C++ • Working with pointers and memory allocation functions (new, delete) • Practical examples and exercises to reinforce the concept
Week 7-8	Week 7-8: Files • Introduction to file handling in C++ • Reading from and writing to files • Exercises and projects involving file input/output operations

Week 9	Week 9: Midterm Examination • Midterm examination covering topics from weeks 1-8 • Review of previous topics and discussion of any questions or concerns
Week 10	Week 10: Exception Handling • Introduction to exception handling in C++ • Handling runtime errors and exceptional situations • Practice exercises and examples to understand exception handling mechanisms
Week 11-14	Week 11-14: Prepare Mini Project • Working on a mini project that integrates concepts learned so far • Planning, designing, and implementing a small-scale application or program • Regular progress check-ins and guidance throughout the project development
Week 15	Week 15: Revision and Review • Recap of all topics covered throughout the course • Review exercises, discussions, and Q&A sessions to solidify understanding • Final exam preparation and guidance

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Problem Solving with C++ by Walter Savitch (Author), Kenrick Mock (Author)	
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks**	**Definition**

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Organization**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	NT108				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	2	
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		**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NT104	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Understanding Computer Architecture: o Gain a comprehensive understanding of computer organization and architecture principles. o Understand the components and their interconnections in a computer system. 2. Data Representation and Arithmetic: o Learn various number systems and their conversions (binary, decimal, hexadecimal). o Understand how data is represented and manipulated in a computer system. o Perform arithmetic operations on binary numbers. 3. Memory Systems: o Understand the organization and hierarchy of computer memory systems. o Learn about caching techniques and their impact on performance. o Study memory management and addressing techniques. 4. Instruction Set Architecture (ISA): o Learn about different instruction set architectures and their characteristics. o Understand the components and execution of instructions. o Analyze the relationship between ISA and machine language. 5. Processor Organization: o Understand the structure and components of a processor. o Learn about instruction pipelining and its benefits and challenges. o Study the design and implementation of control units. 6. Input/Output (I/O) Systems: o Learn about different I/O devices and their interfaces.

	○ Understand the techniques used for I/O data transfer. ○ Study interrupt handling and DMA (Direct Memory Access). 7. Parallel Processing and Multiprocessor Systems: ○ Understand the concepts of parallel processing and its benefits. ○ Study different parallel processing architectures and their characteristics. ○ Learn about multiprocessor systems and their organization. 8. Performance Evaluation and Optimization: ○ Learn performance metrics and evaluation techniques for computer systems. ○ Understand the factors affecting computer system performance. ○ Study optimization techniques to improve system performance. 9. Emerging Trends and Technologies: ○ Explore current and emerging trends in computer organization. ○ Study new technologies and their impact on computer systems. ○ Understand the challenges and opportunities in designing future computer architectures.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the fundamental principles of computer organization and architecture, including the components and their interactions within a computer system. 2. Demonstrate knowledge and proficiency in various number systems, data representation, and arithmetic operations in a computer system. 3. Analyze and evaluate different memory systems, including cache memory and main memory, and understand their impact on computer performance. 4. Describe and interpret different instruction set architectures (ISAs), including their components, instruction formats, and execution. 5. Analyze and evaluate the design and organization of processors, including pipelining techniques and control unit implementation. 6. Understand the principles and techniques of input/output (I/O) systems, including I/O devices, interfaces, interrupts, and direct memory access (DMA). 7. Discuss and evaluate parallel processing and multiprocessor systems, including concepts of parallelism, parallel architectures, and interconnectivity. 8. Apply performance evaluation techniques to measure and analyze the performance of computer systems, and propose optimization strategies for improving system performance. 9. Stay informed about current and emerging trends and technologies in computer organization, and assess their potential impact on future computer architectures. 10. Demonstrate effective problem-solving, critical thinking, and analytical skills in the context of computer organization and architecture. 11. Communicate effectively, both orally and in writing, about complex concepts and topics related to computer organization. **12.** Work collaboratively and contribute effectively as a team member in group projects and activities related to computer organization.
Indicative Contents	1. Introduction to Computer Organization:

المحتويات الإرشادية	○ Basic concepts and terminology in computer organization. ○ Historical development and evolution of computer architecture. 2. Digital Logic and Boolean Algebra: ○ Binary representation and arithmetic operations. ○ Logic gates, Boolean functions, and truth tables. ○ Combinational and sequential logic circuits. 3. Data Representation and Arithmetic: ○ Number systems: binary, decimal, hexadecimal. ○ Signed and unsigned integer representation. ○ Floating-point representation and arithmetic operations. 4. Central Processing Unit (CPU): ○ Instruction set architecture (ISA) and machine language. ○ CPU organization and components. ○ Control unit, instruction fetching, and execution. 5. Memory Systems: ○ Memory hierarchy and storage technologies. ○ Cache memory organization, principles, and mapping techniques. ○ Main memory organization and addressing modes. ○ Virtual memory concepts and techniques. 6. Input/Output (I/O) Systems: ○ I/O devices, interfaces, and data transfer methods. ○ Interrupt handling and interrupt-driven I/O. ○ Direct Memory Access (DMA) and its role in data transfer. 7. Pipeline Processing: ○ Instruction pipelining concepts and stages. ○ Hazards and techniques for hazard detection and resolution. ○ Performance metrics and improvements in pipeline processing. 8. Parallel Processing and Multiprocessor Systems: ○ Concepts of parallel processing and its benefits. ○ Types of parallel architectures: SIMD, MIMD, and multicore. ○ Interconnection networks and communication among processors. 9. Performance Evaluation and Optimization: ○ Performance metrics and measurement techniques. ○ Bottleneck identification and performance analysis. ○ Techniques for optimizing computer system performance. 10. Emerging Trends and Advanced Topics: ○ Advanced topics in computer organization, such as superscalar processors, out-of-order execution, and speculative execution. ○ Emerging technologies and their impact on computer organization, such as quantum computing and neuromorphic computing.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Understand the Fundamentals: ○ Start by grasping the foundational concepts and principles of

	computer organization, such as binary representation, digital logic, and Boolean algebra. o Build a strong understanding of number systems, data representation, and arithmetic operations used in computer systems. 2. Visualize and Diagram: o Use visual aids, diagrams, and flowcharts to represent and understand the structure and organization of computer components. o Draw diagrams to illustrate the flow of data and control signals within a computer system, such as the CPU, memory, and I/O devices. 3. Hands-on Experience: o Gain practical experience by working with computer hardware and software. This can involve assembling computers, configuring components, or writing low-level programs. o Experiment with simulators or emulators to observe how instructions are executed and how data flows through different computer components. 4. Relate to Real-World Examples: o Relate the concepts of computer organization to real-world examples and applications. Understand how the principles of computer organization are applied in everyday computing devices. 5. Analyze and Evaluate Case Studies: o Study and analyze case studies of actual computer architectures and designs. o Examine the trade-offs made in the design of different computer systems, considering factors such as performance, power consumption, and cost. 6. Solve Practice Problems: o Practice solving problems related to computer organization. This could involve analyzing and designing digital circuits, writing assembly language programs, or optimizing system performance. 7. Stay Updated with Current Research: o Keep up-to-date with the latest advancements and research in computer organization. o Read academic papers, attend conferences, and follow industry trends to understand emerging technologies and new approaches to computer organization. 8. Collaborate and Discuss: o Engage in discussions and collaborate with peers or study groups. Share knowledge, exchange ideas, and clarify concepts through group discussions or online forums. 9. Seek Guidance and Resources: o Consult textbooks, online resources, and academic materials that cover computer organization. o Seek guidance from instructors, tutors, or professionals with expertise in computer architecture and organization. 10. Practice Conceptual Mapping:

	○ Develop a conceptual map or framework to connect the different topics and components of computer organization. ○ Understand how the various concepts and components fit together to form a cohesive computer system.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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, Overview of computer systems and their components (done)
Week 2	Digital Logic and Boolean Algebra,
Week 3	Data Representation and Arithmetic
Week 4	Central Processing Unit (CPU) (done)
Week 5	Instruction set architecture (ISA) and machine language
Week 6	CPU organization and components
Week 7	Control unit and instruction execution
Week 8	Memory Hierarchy (done)
Week 9	Memory organization and addressing (done)
Week 10	Cache memory: principles, levels, and mapping techniques (done)
Week 11	Input/Output Systems, Interrupts and DMA (Direct Memory Access), I/O performance and strategies
Week 12	Pipelining and Superscalar Techniques
Week 13	Multiprocessors and Parallel Computer Architecture
Week 14	Performance Evaluation and Benchmarking
Week 15	Review

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	8086 system architecture
Week 2	8086 Instruction Set-1
Week 3	8086 Instruction Set-2
Week 4	8086 Instruction Set-3
Week 5	8086 Instruction Set-4
Week 6	8086 Instruction Set-5
Week 7	8086 Addressing Mode
Week 8	Memories (RAM, ROM) (done)
Week 9	Cache Memory ((done))
Week 10	8086 Programming Skills
Week 11	8086 Programming Skills
Week 12	8086 I/O unit
Week 13	Memory Mapped I/O, Isolated Input Output
Week 14	Memory/Input Output Interface
Week 15	Review

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Hwang K., 1993, "Advanced Computer Architecture: Parallelism ,Scalability and Programmability", *McGraw-Hill, Inc. ASIN: 7111067126.*	
Recommended Texts	Barry B. Brey, "The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, and Pentium Pro Processor Architecture, Programming, and Interfacing", Pearson Education, 2010	
Websites	https://www.javatpoint.com/8086-microprocessor https://www.tutorialspoint.com/microprocessor/microprocessor_8086_functional_units.htm	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	Data Communication and Networking	Module Delivery
Module Type	Core	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	NT109	
ECTS Credits	5	
SWL (hr/sem)	125	

Module Level	1	**Semester of Delivery**	2
Administering Department	NT	**College**	CSM
Module Leader	Name	**e-mail**	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		**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	NT101	**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

In this course, Networks department aims to achieve the following objectives:

1. Understand the fundamental concepts and principles of data communication and networking.
2. Gain knowledge of communication systems and their components.
3. Familiarize with different communication network types and their characteristics.
4. Comprehend the protocol architecture and the OSI model.
5. Understand the functions and operations of each layer in the OSI model.
6. Gain knowledge of the physical layer, including digital and analog transmission and various transmission media.

	7. Understand data and signal concepts, analog, and digital signals, and transmission impairments. 8. Learn about digital transmission techniques, including digital-to-digital conversion and transmission modes. 9. Familiarize with analog transmission techniques, including analog-to-analog conversion and modulation. 10. Gain knowledge of multiplexing techniques such as FDM, TDM, and WDM, and understand synchronization methods. 11. Learn about guided transmission media, including twisted pair, coaxial cable, and fiber-optic. 12. Gain knowledge of unguided transmission media, including wireless, satellite, and microwave. 13. Understand error detection and correction techniques such as parity checking, checksum, and CRC. 14. Learn about multiplexing and multiple access techniques, including FDMA, TDMA, and CDMA. 15. Gain knowledge of wired LANs, with a focus on Ethernet standards, evolution, frame structure, and operation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the this course for the Networks department, students should be able to demonstrate the following learning outcomes: 1. Understand the fundamental concepts and principles of data communication and networking, including communication models, network types, and protocol architecture. 2. Demonstrate knowledge of the OSI model and its layers, and explain the functions and operations of each layer. 3. Describe the characteristics, advantages, and limitations of different transmission media, both guided and unguided. 4. Analyze and interpret data and signals, including analog and digital signals, and understand the factors affecting transmission quality. 5. Apply digital transmission techniques, including digital-to-digital conversion and various transmission modes. 6. Apply analog transmission techniques, including analog-to-analog conversion and modulation methods. 7. Demonstrate an understanding of multiplexing techniques, such as FDM, TDM, and WDM, and explain their advantages and applications. 8. Compare and contrast different guided transmission media, such as twisted pair, coaxial cable, and fiber-optic, based on their characteristics and capabilities. 9. Evaluate the characteristics and advantages of unguided transmission media, including wireless, satellite, and microwave technologies. 10. Apply error detection and correction techniques, including parity

	checking, checksum, and CRC, to ensure data integrity. 11. Analyze multiplexing and multiple access techniques, such as FDMA, TDMA, and CDMA, and understand their applications in communication systems. 12. Explain the Ethernet standard, its evolution, and the frame structure of Ethernet LANs. 13. Evaluate the security considerations and challenges associated with data communication and networking. 14. Demonstrate effective communication and collaboration skills in a networking context. 15. Apply theoretical knowledge to analyze and solve practical problems related to data communication and networking.
Indicative Contents المحتويات الإرشادية	The indicative contents of this course for the computer department may include the following topics: 1. Communication Systems • Introduction to communication systems • Communication models and components 2. Network Criteria and Communication Network Types • Network criteria (performance, reliability, security, etc.) • Communication network types 3. Protocol Architecture and OSI Model • Protocol architecture and layered approach • OSI model and its layers • Functions of each OSI layer 4. Physical Layer • Introduction to the physical layer • Digital and analog transmission • Transmission media: Guided and unguided 5. Data and Signals • Data and signal concepts • Analog and digital signals • Transmission impairments and noise 6. Digital-to-Digital Conversion • Digital-to-digital conversion techniques 7. Analog Transmission • Analog-to-analog conversion • Analog-to-digital conversion • Modulation techniques (AM, FM, PM) 8. Multiplexing • Multiplexing techniques (FDM, TDM, WDM) • Statistical multiplexing and its advantages

	• Synchronization and its types 9. Guided Transmission Media • Twisted pair, coaxial cable, and fiber-optic • Characteristics, advantages, and limitations 10. Unguided Transmission Media • Wireless, satellite, and microwave • Characteristics, advantages, and limitations 11. Error Detection and Correction • Introduction to error detection and correction • Parity checking, checksum, and CRC • Forward error correction techniques 12. Multiplexing and Multiple Access • Frequency division multiplexing (FDM) • Time division multiplexing (TDM) • Multiple access techniques (FDMA, TDMA, CDMA) 13. Wired LANs: Ethernet • Introduction to local area networks (LANs) • Ethernet standard and its evolution. • Ethernet frame structure and operation

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for this course for the Network department can include a combination of the following: 29. Lectures: Engage students through informative lectures that cover theoretical concepts and provide an overview of key topics. Use multimedia resources, visuals, and real-world examples to enhance understanding. 30. Group Discussions and Collaborative Learning: Encourage group discussions and collaborative activities to foster interaction and knowledge sharing among students. Assign group projects or case studies that require teamwork and problem-solving. 31. Online Resources and Multimedia: Utilize online resources, interactive tutorials, and multimedia materials to supplement learning. This can include video lectures, online quizzes, virtual labs, and interactive modules. 32. Assignments and Projects: Assign individual and group projects that require students to apply their knowledge and skills to solve real-world problems or complete practical tasks. This promotes critical thinking, problem-solving, and practical application of concepts. 33. Assessments and Feedback: Conduct regular assessments, quizzes, and examinations to evaluate students' understanding of the course material.

	Provide timely and constructive feedback to help students identify areas of improvement. 34. Industry Visits and Field Trips: Organize visits to IT companies, data centers, or relevant organizations to expose students to real-world IT environments. This provides valuable industry insights and networking opportunities. 35. Online Discussion Forums and Communication Platforms: Establish online discussion forums or communication platforms where students can ask questions, share resources, and engage in discussions outside of the classroom. These strategies promote active learning, practical application of knowledge, and engagement with the subject matter. They cater to different learning styles and encourage students to develop critical thinking, problem-solving, and communication skills necessary for success in this field.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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	• Communication Systems
Week 2	• Network Criteria and Communication Network Types
Week 3	• Protocol Architecture and OSI Model
Week 4	• Physical Layer
Week 5	• Data and Signals
Week 6	• Digital-to-Digital Conversion (Part 1)
Week 7	• Digital-to-Digital Conversion (Part 2)
Week 8	• Analog Transmission
Week 9	• Mid term
Week 10	• Multiplexing
Week 11	• Guided Transmission Media
Week 12	• Unguided Transmission Media
Week 13	• Error Detection and Correction
Week 14	• Wired LANs: Ethernet
Week 15	Week 15: Review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Data Communication and Networking	
Recommended Texts		

Websites	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Probabilities and Statistics**	**Module Delivery**	
Module Type	**SUPPORT**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**NT110**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		

Module Level	1	**Semester of Delivery**	2
Administering Department	NT	**College**	CSM
Module Leader	Name	**e-mail**	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		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The Probabilities and statistics basics course for the Networks department aims to achieve the following objectives: 1. Understand the fundamental concepts of probability theory: Students should develop a solid foundation in probability theory, including concepts such as sample spaces, events, probability axioms, conditional probability, and independence. 2. Apply probability concepts to real-world scenarios: Students should be able to apply probability theory to solve problems and analyze real-world situations that involve uncertainty and randomness. This includes calculating probabilities, understanding the concept of expected value, and analyzing random variables. 3. Comprehend statistical concepts and methods: Students should acquire a good understanding of statistical concepts, such as random variables, probability distributions, central tendency, variability, hypothesis testing, confidence intervals, and regression analysis. 4. Perform statistical data analysis: Students should learn how to collect, organize, and analyze data using appropriate statistical techniques. This includes techniques for data exploration, summarization, and inference. 5. Interpret and communicate statistical results: Students should be able to interpret the results of statistical analyses and effectively communicate their findings to others. This involves understanding the limitations of statistical methods and drawing appropriate conclusions from the data. 6. Apply statistical software: Students should gain hands-on experience

	with statistical software packages commonly used for data analysis, such as R, Python, or SPSS. They should be able to use these tools to perform statistical computations and generate graphical representations of data. 7. Develop critical thinking and problem-solving skills: The course aims to enhance students' critical thinking abilities by challenging them to analyze problems, evaluate evidence, and make informed decisions based on statistical reasoning. 8. Foster a strong mathematical foundation: Probability and Statistics often require a solid understanding of mathematical concepts, so the course aims to strengthen students' mathematical skills, including algebra, calculus, and basic mathematical notation. 9. Prepare for further study in related fields: The course may serve as a prerequisite or provide a foundation for more advanced courses in areas such as machine learning, data science, economics, psychology, or engineering, where probabilistic and statistical methods are commonly used.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the Probabilities and statistics basics course for the Networks department, students should be able to demonstrate the following learning outcomes: 1. Understand fundamental probability concepts: Students should be able to demonstrate a strong understanding of basic probability concepts, including sample spaces, events, probability axioms, conditional probability, and independence. 2. Apply probability techniques: Students should be able to apply probability techniques to solve problems in various contexts, such as calculating probabilities of events, determining expected values, and understanding concepts like random variables and probability distributions. 3. Analyze statistical data: Students should be able to collect, organize, and analyze data using appropriate statistical methods. This includes understanding descriptive statistics, graphical representations of data, and basic inferential statistics. 4. Interpret statistical results: Students should be able to interpret the results of statistical analyses and draw meaningful conclusions. This involves understanding concepts such as confidence intervals, hypothesis testing, p-values, and statistical significance. 5. Apply statistical software: Students should be proficient in using statistical software packages (e.g., R, Python, SPSS) to perform data

	analysis and generate graphical representations of data. 6. Critically evaluate statistical claims: Students should be able to critically evaluate statistical claims and arguments presented in various contexts, such as scientific research, news articles, and advertisements. They should be able to identify common fallacies and recognize the importance of sound statistical reasoning. 7. Communicate statistical information: Students should be able to effectively communicate statistical information to both technical and non-technical audiences. This includes presenting findings, using appropriate visualizations, and conveying the limitations and implications of statistical analyses. 8. Apply statistical methods to real-world problems: Students should be able to apply their knowledge of probability and statistics to real-world problems in various fields, such as business, social sciences, engineering, or healthcare. They should be able to identify appropriate statistical methods and apply them to analyze and solve problems. 9. Develop critical thinking and problem-solving skills: The course should foster the development of critical thinking skills by engaging students in problem-solving activities that require them to think analytically, reason statistically, and make informed decisions based on data. 10. Prepare for further study or careers: The course should provide a solid foundation for students who wish to pursue further study or careers in fields that require a strong understanding of probability and statistics, such as data science, machine learning, economics, psychology, or research. These learning outcomes reflect the overarching goals of a Probabilities and Statistics course, which aim to equip students with the knowledge, skills, and tools necessary to understand and analyze data, make informed decisions, and apply statistical methods in various contexts.
Indicative Contents المحتويات الإرشادية	The indicative contents of the Probabilities and Statistics basics course for the computer department may include the following topics: 21. Introduction to Probability: o Basic concepts of probability: sample spaces, events, and outcomes. o Probability axioms and properties. o Combinatorics: permutations and combinations. o Conditional probability and independence. 22. Discrete Probability Distributions:

- Random variables and probability mass functions.
- Common discrete probability distributions: binomial, Poisson, and geometric distributions.
- Expected value and variance of discrete random variables.
- Joint probability distributions and conditional distributions.

23. Continuous Probability Distributions:

- Continuous random variables and probability density functions.
- Common continuous probability distributions: uniform, exponential, normal (Gaussian), and gamma distributions.
- Expected value and variance of continuous random variables.
- Joint probability distributions and conditional distributions.

24. Sampling and Data Description:

- Sampling techniques and sampling distributions.
- Descriptive statistics: measures of central tendency, measures of dispersion, and graphical representations of data.
- Data exploration and visualization.

25. Estimation and Confidence Intervals:

- Point estimation: methods for estimating population parameters.
- Interval estimation: construction and interpretation of confidence intervals.
- Sample size determination for estimation.

26. Hypothesis Testing:

- Null and alternative hypotheses.
- Test statistics and p-values.
- Types of errors and power of tests.
- Common hypothesis tests: z-tests, t-tests, chi-square tests.

27. Inference for Means and Proportions:

- Inference for population means: one-sample, independent samples, and paired samples.
- Inference for population proportions: one-sample and two-sample proportions.

28. Analysis of Variance (ANOVA):

- One-way ANOVA: comparing means of multiple groups.
- Post hoc tests and multiple comparisons.
- Two-way ANOVA: analyzing the effects of two factors.

29. Simple Linear Regression:

- The simple linear regression model.
- Least squares estimation and interpretation of coefficients.
- Assessing model fit and making predictions.

	30. Probability and Statistics in Decision Making: o Decision theory and utility. o Expected value and decision-making under uncertainty. o Risk assessment and risk management. 31. Introduction to Bayesian Statistics (optional): o Bayesian probability and Bayes' theorem. o Prior and posterior distributions. o Bayesian inference and decision-making. 32. Introduction to Statistical Software: o Hands-on experience with statistical software packages like R, Python, or SPSS. o Data manipulation, analysis, and visualization using software tools.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the Probabilities and statistics basics course for the Network department can include a combination of the following: 1. Active Learning: Encourage active learning by incorporating activities that involve student participation, such as group discussions, problem-solving exercises, case studies, and hands-on data analysis projects. This approach helps students actively engage with the material, apply concepts, and develop a deeper understanding. 2. Real-World Examples: Use real-world examples and applications to demonstrate the relevance and practicality of probability and statistics. Relating the course content to everyday scenarios, industries, and research fields can enhance students' understanding and motivation. 3. Visual Representations: Utilize visual representations, such as charts, graphs, diagrams, and interactive simulations, to illustrate statistical concepts and relationships. Visual aids can help students visualize abstract concepts, interpret data, and identify patterns more effectively. 4. Technology Integration: Integrate statistical software tools, such as R, Python, or spreadsheet applications, into the course to facilitate data analysis and exploration. This hands-on experience with real-world data and statistical software enhances students' data manipulation and analysis skills.

5. Scaffolding: Break down complex topics into smaller, more manageable subtopics and provide scaffolding support to guide students through the learning process. Start with foundational concepts and gradually introduce more advanced topics, building upon prior knowledge.
6. Formative Assessment: Incorporate formative assessments, such as quizzes, in-class exercises, and homework assignments, to gauge students' understanding and provide feedback. This allows students to identify areas of weakness and reinforces learning throughout the course.
7. Problem-Based Learning: Present students with real-world problems or case studies that require the application of probability and statistical methods. This approach encourages critical thinking, problem-solving skills, and the integration of theoretical knowledge into practical scenarios.
8. Collaborative Learning: Promote collaboration and peer interaction through group activities, discussions, and projects. Working in teams allows students to learn from each other, share perspectives, and develop teamwork and communication skills.
9. Practical Exercises and Experiments: Incorporate practical exercises and experiments that involve collecting and analyzing data. This hands-on approach provides students with firsthand experience in data collection, manipulation, and statistical analysis, reinforcing theoretical concepts.
10. Reflection and Metacognition: Encourage students to reflect on their learning process and develop metacognitive skills. Regularly prompt students to evaluate their understanding, identify areas of improvement, and reflect on their learning strategies.
11. Office Hours and Support: Provide opportunities for individualized support, such as office hours or online discussion forums, where students can seek clarification, ask questions, and receive personalized guidance.
12. Engage with Resources: Encourage students to explore additional resources, such as textbooks, online tutorials, academic journals, or educational videos, to deepen their understanding and explore specific topics of interest.

By implementing these strategies, instructors can create an engaging and effective learning environment that fosters students' understanding, critical thinking skills, and practical application of probability and statistical concepts.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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	Week 1: Introduction to Probabilities and statistics • Basic concepts of probability: sample spaces, events, and outcomes. • Probability axioms and properties. • Combinatorics: permutations and combinations. • Conditional probability and independence.
Week 2	Week 2: Introduction to Probabilities and statistics • Combinatorics: permutations and combinations. • Conditional probability and independence.

Week 3	Week 3: Discrete Probability Distributions • Random variables and probability mass functions. • Common discrete probability distributions: binomial, Poisson, and geometric distributions.
Week 4	Week 4: Discrete Probability Distributions • Expected value and variance of discrete random variables. • Joint probability distributions and conditional distributions.
Week 5	Week 5: Continuous Probability Distributions • Continuous random variables and probability density functions. • Common continuous probability distributions: uniform, exponential, normal (Gaussian), and gamma distributions.
Week 6	Week 6: Continuous Probability Distributions • Expected value and variance of continuous random variables. • Joint probability distributions and conditional distributions.
Week 7	Week 7: Sampling and Data Description • Sampling techniques and sampling distributions. • Descriptive statistics: measures of central tendency, measures of dispersion, and graphical representations of data.
Week 8	Week 8: Sampling and Data Description • Data exploration and visualization.
Week 9	Week 9: Estimation and Confidence Intervals • Point estimation: methods for estimating population parameters. • Interval estimation: construction and interpretation of confidence intervals.
Week 10	Week 10: Estimation and Confidence Intervals • Sample size determination for estimation
Week 11	Week 11: Hypothesis Testing • Null and alternative hypotheses. • Test statistics and p-values.

Week 12	Week 12: Hypothesis Testing • Types of errors and power of tests. • Common hypothesis tests: z-tests, t-tests, chi-square tests.
Week 13	Week 13: Inference for Means and Proportions • Inference for population means: one-sample, independent samples, and paired samples. • Inference for population proportions: one-sample and two-sample proportions.
Week 14	Week 14: Analysis of Variance (ANOVA) • One-way ANOVA: comparing means of multiple groups. • Post hoc tests and multiple comparisons. • Two-way ANOVA: analyzing the effects of two factors.
Week 15	Week 15: Review and Final Projects • Review of key concepts covered throughout the course • Completion of final projects or assignments demonstrating understanding of IT basics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to R • Introduction to R environment and RStudio. • Basic R syntax, data types, and objects. • Reading data into R and basic data manipulation.
Week 2	Descriptive Statistics in R 2. Calculating measures of central tendency and dispersion. 3. Creating frequency tables and histograms. 4. Exploratory data analysis with R graphics.
Week 3	Probability Distributions in R 1. Generating random numbers from common probability distributions. 2. Calculating probabilities and percentiles.

	3. Plotting probability density functions and cumulative distribution functions.
Week 4	Sampling and Confidence Intervals in R 2. Simple random sampling in R. 3. Estimating population parameters and constructing confidence intervals. 4. Visualizing sampling distributions.
Week 5	Hypothesis Testing in R 2. Performing hypothesis tests for means and proportions. 3. Interpreting p-values and making decisions. 4. Conducting t-tests and chi-square tests in R.
Week 6	Analysis of Variance (ANOVA) in R 2. One-way ANOVA and post hoc tests. 3. Analyzing and interpreting ANOVA results. 4. Visualizing ANOVA data with boxplots and interaction plots.
Week 7	Simple Linear Regression in R • Fitting a simple linear regression model. • Assessing model fit and interpreting coefficients. • Predicting outcomes and evaluating the model.
Week 8	Multiple Linear Regression in R • Extending the simple linear regression to multiple predictors. • Model diagnostics and interpretation of results. Handling categorical predictors and interactions
Week 9	Logistic Regression in R • Introduction to logistic regression. • Fitting logistic regression models and interpreting coefficients. • Model assessment and prediction.
Week 10	Time Series Analysis in R • Introduction to time series data. • Time series decomposition and forecasting. • Analyzing and visualizing time series data.

Week 11	: Nonparametric Methods in R • Wilcoxon rank-sum test and Wilcoxon signed-rank test. • Kruskal-Wallis test and Friedman test. • Conducting nonparametric tests in R.
Week 12	Bayesian Statistics in R (optional) • Introduction to Bayesian inference. • Fitting Bayesian models and sampling from posterior distributions. • Interpreting and comparing Bayesian results.
Week 13	: Data Analysis Projects • Students work on data analysis projects applying concepts and techniques learned throughout the course. • Guidance, support, and feedback provided by the instructor during lab sessions.
Week 14	: Data Analysis Projects • Students work on data analysis projects applying concepts and techniques learned throughout the course. • Guidance, support, and feedback provided by the instructor during lab sessions.
Week 15	: Review and Wrap-up • Recap of key concepts and techniques covered throughout the course. • Q&A sessions, review exercises, and additional practice.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	**Probabilities and Statistics**	**Module Delivery**	
Module Type	**SUPPORT**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**NT110**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		
Module Level	1	**Semester of Delivery**	2
Administering Department	NT	**College**	CSM
Module Leader	Name	**e-mail**	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		**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The Probabilities and statistics basics course for the Networks department aims to achieve the following objectives: 10. Understand the fundamental concepts of probability theory: Students should develop a solid foundation in probability theory, including concepts such as sample spaces, events, probability axioms, conditional probability, and independence. 11. Apply probability concepts to real-world scenarios: Students should be able to apply probability theory to solve problems and analyze real-world situations that involve uncertainty and randomness. This includes calculating probabilities, understanding the concept of expected value, and analyzing random variables. 12. Comprehend statistical concepts and methods: Students should acquire a good understanding of statistical concepts, such as random variables, probability distributions, central tendency, variability, hypothesis testing, confidence intervals, and regression analysis. 13. Perform statistical data analysis: Students should learn how to collect, organize, and analyze data using appropriate statistical techniques. This includes techniques for data exploration, summarization, and inference. 14. Interpret and communicate statistical results: Students should be able to interpret the results of statistical analyses and effectively communicate their findings to others. This involves understanding the limitations of statistical methods and drawing appropriate conclusions from the data. 15. Apply statistical software: Students should gain hands-on experience with statistical software packages commonly used for data analysis, such as R, Python, or SPSS. They should be able to use these

	tools to perform statistical computations and generate graphical representations of data. 16. Develop critical thinking and problem-solving skills: The course aims to enhance students' critical thinking abilities by challenging them to analyze problems, evaluate evidence, and make informed decisions based on statistical reasoning. 17. Foster a strong mathematical foundation: Probability and Statistics often require a solid understanding of mathematical concepts, so the course aims to strengthen students' mathematical skills, including algebra, calculus, and basic mathematical notation. 18. Prepare for further study in related fields: The course may serve as a prerequisite or provide a foundation for more advanced courses in areas such as machine learning, data science, economics, psychology, or engineering, where probabilistic and statistical methods are commonly used.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the Probabilities and statistics basics course for the Networks department, students should be able to demonstrate the following learning outcomes: 11. Understand fundamental probability concepts: Students should be able to demonstrate a strong understanding of basic probability concepts, including sample spaces, events, probability axioms, conditional probability, and independence. 12. Apply probability techniques: Students should be able to apply probability techniques to solve problems in various contexts, such as calculating probabilities of events, determining expected values, and understanding concepts like random variables and probability distributions. 13. Analyze statistical data: Students should be able to collect, organize, and analyze data using appropriate statistical methods. This includes understanding descriptive statistics, graphical representations of data, and basic inferential statistics. 14. Interpret statistical results: Students should be able to interpret the results of statistical analyses and draw meaningful conclusions. This involves understanding concepts such as confidence intervals, hypothesis testing, p-values, and statistical significance. 15. Apply statistical software: Students should be proficient in using statistical software packages (e.g., R, Python, SPSS) to perform data analysis and generate graphical representations of data. 16. Critically evaluate statistical claims: Students should be able to

	critically evaluate statistical claims and arguments presented in various contexts, such as scientific research, news articles, and advertisements. They should be able to identify common fallacies and recognize the importance of sound statistical reasoning. 17. Communicate statistical information: Students should be able to effectively communicate statistical information to both technical and non-technical audiences. This includes presenting findings, using appropriate visualizations, and conveying the limitations and implications of statistical analyses. 18. Apply statistical methods to real-world problems: Students should be able to apply their knowledge of probability and statistics to real-world problems in various fields, such as business, social sciences, engineering, or healthcare. They should be able to identify appropriate statistical methods and apply them to analyze and solve problems. 19. Develop critical thinking and problem-solving skills: The course should foster the development of critical thinking skills by engaging students in problem-solving activities that require them to think analytically, reason statistically, and make informed decisions based on data. 20. Prepare for further study or careers: The course should provide a solid foundation for students who wish to pursue further study or careers in fields that require a strong understanding of probability and statistics, such as data science, machine learning, economics, psychology, or research. These learning outcomes reflect the overarching goals of a Probabilities and Statistics course, which aim to equip students with the knowledge, skills, and tools necessary to understand and analyze data, make informed decisions, and apply statistical methods in various contexts.
Indicative Contents المحتويات الإرشادية	The indicative contents of the Probabilities and Statistics basics course for the computer department may include the following topics: 33. Introduction to Probability: o Basic concepts of probability: sample spaces, events, and outcomes. o Probability axioms and properties. o Combinatorics: permutations and combinations. o Conditional probability and independence. 34. Discrete Probability Distributions: o Random variables and probability mass functions.

- Common discrete probability distributions: binomial, Poisson, and geometric distributions.
- Expected value and variance of discrete random variables.
- Joint probability distributions and conditional distributions.

35. Continuous Probability Distributions:

- Continuous random variables and probability density functions.
- Common continuous probability distributions: uniform, exponential, normal (Gaussian), and gamma distributions.
- Expected value and variance of continuous random variables.
- Joint probability distributions and conditional distributions.

36. Sampling and Data Description:

- Sampling techniques and sampling distributions.
- Descriptive statistics: measures of central tendency, measures of dispersion, and graphical representations of data.
- Data exploration and visualization.

37. Estimation and Confidence Intervals:

- Point estimation: methods for estimating population parameters.
- Interval estimation: construction and interpretation of confidence intervals.
- Sample size determination for estimation.

38. Hypothesis Testing:

- Null and alternative hypotheses.
- Test statistics and p-values.
- Types of errors and power of tests.
- Common hypothesis tests: z-tests, t-tests, chi-square tests.

39. Inference for Means and Proportions:

- Inference for population means: one-sample, independent samples, and paired samples.
- Inference for population proportions: one-sample and two-sample proportions.

40. Analysis of Variance (ANOVA):

- One-way ANOVA: comparing means of multiple groups.
- Post hoc tests and multiple comparisons.
- Two-way ANOVA: analyzing the effects of two factors.

41. Simple Linear Regression:

- The simple linear regression model.
- Least squares estimation and interpretation of coefficients.
- Assessing model fit and making predictions.

42. Probability and Statistics in Decision Making:

	○ Decision theory and utility. ○ Expected value and decision-making under uncertainty. ○ Risk assessment and risk management. 43. Introduction to Bayesian Statistics (optional): ○ Bayesian probability and Bayes' theorem. ○ Prior and posterior distributions. ○ Bayesian inference and decision-making. 44. Introduction to Statistical Software: ○ Hands-on experience with statistical software packages like R, Python, or SPSS. ○ Data manipulation, analysis, and visualization using software tools.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for the Probabilities and statistics basics course for the Network department can include a combination of the following: 13. Active Learning: Encourage active learning by incorporating activities that involve student participation, such as group discussions, problem-solving exercises, case studies, and hands-on data analysis projects. This approach helps students actively engage with the material, apply concepts, and develop a deeper understanding. 14. Real-World Examples: Use real-world examples and applications to demonstrate the relevance and practicality of probability and statistics. Relating the course content to everyday scenarios, industries, and research fields can enhance students' understanding and motivation. 15. Visual Representations: Utilize visual representations, such as charts, graphs, diagrams, and interactive simulations, to illustrate statistical concepts and relationships. Visual aids can help students visualize abstract concepts, interpret data, and identify patterns more effectively. 16. Technology Integration: Integrate statistical software tools, such as R, Python, or spreadsheet applications, into the course to facilitate data analysis and exploration. This hands-on experience with real-world data and statistical software enhances students' data manipulation and analysis skills.

17. Scaffolding: Break down complex topics into smaller, more manageable subtopics and provide scaffolding support to guide students through the learning process. Start with foundational concepts and gradually introduce more advanced topics, building upon prior knowledge.

18. Formative Assessment: Incorporate formative assessments, such as quizzes, in-class exercises, and homework assignments, to gauge students' understanding and provide feedback. This allows students to identify areas of weakness and reinforces learning throughout the course.

19. Problem-Based Learning: Present students with real-world problems or case studies that require the application of probability and statistical methods. This approach encourages critical thinking, problem-solving skills, and the integration of theoretical knowledge into practical scenarios.

20. Collaborative Learning: Promote collaboration and peer interaction through group activities, discussions, and projects. Working in teams allows students to learn from each other, share perspectives, and develop teamwork and communication skills.

21. Practical Exercises and Experiments: Incorporate practical exercises and experiments that involve collecting and analyzing data. This hands-on approach provides students with firsthand experience in data collection, manipulation, and statistical analysis, reinforcing theoretical concepts.

22. Reflection and Metacognition: Encourage students to reflect on their learning process and develop metacognitive skills. Regularly prompt students to evaluate their understanding, identify areas of improvement, and reflect on their learning strategies.

23. Office Hours and Support: Provide opportunities for individualized support, such as office hours or online discussion forums, where students can seek clarification, ask questions, and receive personalized guidance.

24. Engage with Resources: Encourage students to explore additional resources, such as textbooks, online tutorials, academic journals, or educational videos, to deepen their understanding and explore specific topics of interest.

By implementing these strategies, instructors can create an engaging and effective learning environment that fosters students' understanding, critical thinking skills, and practical application of probability and statistical concepts.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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	Week 1: Introduction to Probabilities and statistics • Basic concepts of probability: sample spaces, events, and outcomes. • Probability axioms and properties. • Combinatorics: permutations and combinations. • Conditional probability and independence.
Week 2	Week 2: Introduction to Probabilities and statistics • Combinatorics: permutations and combinations.

	• Conditional probability and independence.
Week 3	Week 3: Discrete Probability Distributions • Random variables and probability mass functions. • Common discrete probability distributions: binomial, Poisson, and geometric distributions.
Week 4	Week 4: Discrete Probability Distributions • Expected value and variance of discrete random variables. • Joint probability distributions and conditional distributions.
Week 5	Week 5: Continuous Probability Distributions • Continuous random variables and probability density functions. • Common continuous probability distributions: uniform, exponential, normal (Gaussian), and gamma distributions.
Week 6	Week 6: Continuous Probability Distributions • Expected value and variance of continuous random variables. • Joint probability distributions and conditional distributions.
Week 7	Week 7: Sampling and Data Description • Sampling techniques and sampling distributions. • Descriptive statistics: measures of central tendency, measures of dispersion, and graphical representations of data.
Week 8	Week 8: Sampling and Data Description • Data exploration and visualization.
Week 9	Week 9: Estimation and Confidence Intervals • Point estimation: methods for estimating population parameters. • Interval estimation: construction and interpretation of confidence intervals.
Week 10	Week 10: Estimation and Confidence Intervals • Sample size determination for estimation
Week 11	Week 11: Hypothesis Testing • Null and alternative hypotheses.

	• Test statistics and p-values.
Week 12	Week 12: Hypothesis Testing • Types of errors and power of tests. • Common hypothesis tests: z-tests, t-tests, chi-square tests.
Week 13	Week 13: Inference for Means and Proportions • Inference for population means: one-sample, independent samples, and paired samples. • Inference for population proportions: one-sample and two-sample proportions.
Week 14	Week 14: Analysis of Variance (ANOVA) • One-way ANOVA: comparing means of multiple groups. • Post hoc tests and multiple comparisons. • Two-way ANOVA: analyzing the effects of two factors.
Week 15	Week 15: Review and Final Projects • Review of key concepts covered throughout the course • Completion of final projects or assignments demonstrating understanding of IT basics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to R • Introduction to R environment and RStudio. • Basic R syntax, data types, and objects. • Reading data into R and basic data manipulation.
Week 2	Descriptive Statistics in R 5. Calculating measures of central tendency and dispersion. 6. Creating frequency tables and histograms. 7. Exploratory data analysis with R graphics.
Week 3	Probability Distributions in R 4. Generating random numbers from common probability distributions.

	5. Calculating probabilities and percentiles. 6. Plotting probability density functions and cumulative distribution functions.
Week 4	Sampling and Confidence Intervals in R 5. Simple random sampling in R. 6. Estimating population parameters and constructing confidence intervals. 7. Visualizing sampling distributions.
Week 5	Hypothesis Testing in R 5. Performing hypothesis tests for means and proportions. 6. Interpreting p-values and making decisions. 7. Conducting t-tests and chi-square tests in R.
Week 6	Analysis of Variance (ANOVA) in R 5. One-way ANOVA and post hoc tests. 6. Analyzing and interpreting ANOVA results. 7. Visualizing ANOVA data with boxplots and interaction plots.
Week 7	Simple Linear Regression in R • Fitting a simple linear regression model. • Assessing model fit and interpreting coefficients. • Predicting outcomes and evaluating the model.
Week 8	Multiple Linear Regression in R • Extending the simple linear regression to multiple predictors. • Model diagnostics and interpretation of results. Handling categorical predictors and interactions
Week 9	Logistic Regression in R • Introduction to logistic regression. • Fitting logistic regression models and interpreting coefficients. • Model assessment and prediction.
Week 10	Time Series Analysis in R • Introduction to time series data. • Time series decomposition and forecasting. • Analyzing and visualizing time series data.

Week 11	: Nonparametric Methods in R • Wilcoxon rank-sum test and Wilcoxon signed-rank test. • Kruskal-Wallis test and Friedman test. • Conducting nonparametric tests in R.
Week 12	Bayesian Statistics in R (optional) • Introduction to Bayesian inference. • Fitting Bayesian models and sampling from posterior distributions. • Interpreting and comparing Bayesian results.
Week 13	: Data Analysis Projects • Students work on data analysis projects applying concepts and techniques learned throughout the course. • Guidance, support, and feedback provided by the instructor during lab sessions.
Week 14	: Data Analysis Projects • Students work on data analysis projects applying concepts and techniques learned throughout the course. • Guidance, support, and feedback provided by the instructor during lab sessions.
Week 15	: Review and Wrap-up • Recap of key concepts and techniques covered throughout the course. • Q&A sessions, review exercises, and additional practice.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Arabic Language**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM101**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		**1**	**Semester of Delivery**		2
Administering Department		**NT**	**College**	CSM	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		18/06/2023	**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	1- التعرف على الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه. 2- معرفة الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية 3- التعرف على حركات الاعراب: سواء كانت اصلية او فرعية 4- معرفة الطالب بالعفل العربي: من حيث الصحة والاعلال 5- معرفة الطالب الفعل العربي من حيث اللزوم والتعدي 6- معرفة لطالب الفعل العربي من حيث الزمن 7- طرق كتابة العدد و تذكرة وتانيثه 8- معرفة علامات الترقيم في الكلام 9- تعلم قواعد رسم الهمزة 10- التعرف على طريقة كتابة التاء المربوطة، والمبسوطة 11- قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب 12- معرفة ماهو الأسلوب الخبري، 13- معرفة ماهو الأسلوب الانشائي، 14- تعلم مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- ان يعرف الطالب الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه. 2- ان يتعلم الطالب الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية 3- التعرف على حركات الاعراب: سواء كانت اصلية او فرعية 4- ان يعرف الطالب العفل العربي: من حيث الصحة والاعلال 5- ان يتعلم الطالب الفعل العربي من حيث اللزوم والتعدي 6- معرفة الطالب الفعل العربي من حيث الزمن 7- معرف الطالب طرق كتابة العدد و تذكرة وتانيثه 8- معرفة الطالب لعلامات الترقيم في الكلام 9- ان يتعلم الطالب قواعد رسم الهمزة 10- معرف الطالب على طريقة كتابة التاء المربوطة، والمبسوطة 11- قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب 12- التعرف على الأسلوب الخبري، 13- معرفة ماهو الأسلوب الانشائي، 14- التعلم على مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Indicative Contents	1- التعرف على الكلام العربي: من ناحية تعريفة، اقسامة، الى علامات كل قسم منه[ساعه 2]

المحتويات الإرشادية	-2 معرفة الجملة العربية واقسام الجملة العربية والجمل الاسمية والجمل الفعلية، ساعه 2 -3 التعرف على حركات الاعراب: سواء كانت اصلية او فرعية، ساعه 2 -4 معرفة الطالب بالعفل العربي: من حيث الصحة والاعلال، ساعه 2 -5 معرفة الطالب الفعل العربي من حيث اللزوم والتعدي، ساعه 2 -6 معرفة لطالب الفعل العربي من حيث الزمن، ساعه 2 -7 طرق كتابة العدد و تذكرة وتانيثه، ساعه 2 -8 معرفة علامات الترقيم في الكلام، ساعه 2 -9 تعلم قواعد رسم الهمزة، ساعه 2 -10 التعرف على طريقة كتابة التاء المربوطة، والمبسوطة، ساعه 2 -11 قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب ، ساعه 2 -12 معرفة ماهو الأسلوب الخبري، ساعه 2 -13 معرفة ماهو الأسلوب الانشائي، ساعه 2 -14 التعلم مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين، ساعه 2

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	الإستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة على المشاركه في الكلام الفربي وكتابته بالصورة الصحيحه ، مع تحسين مهارات التفكير النقدي وتوسيعها في نفس الوقت. سيتم تحقيق ذلك من خلال الفصول والبرامج التعليمية التفاعلية ومن خلال النظر في أنواع التجارب البسيطة التي تتضمن بعض أنشطة أخذ العينات التي تهم الطلاب.

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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	**Quizzes**	3	15% (15)	5 and 10	LO #1, #2 and #10, #11

assessment	**Assignments**	3	15% (15)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.				
	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	الكلام العربي: تعريفة، اقسامة، وعلامات كل قسم.
Week 2	الجملة العربية: تعريفها ، اقسامها : الاسمية والفعلية
Week 3	حركات الاعراب: اصلية، فرعية
Week 4	العفل العربي: من حيث الصحة والاعلال
Week 5	الفعل العربي من حيث اللزوم والتعدي
Week 6	الفعل العربي من حيث الزم
Week 7	امتحان
Week 8	العدد: تذكرة، وتانيثه
Week 9	علامات الترقيم في الكلام
Week 10	قواعد رسم الهمزة
Week 11	التاء المربوطة، والمبسوطة
Week 12	قل ولا تقل: الأخطاء الشائعة لدى المتكلمين والكتاب
Week 13	الأسلوب الخبري،
Week 14	والأسلوب الإنشائي
Week 15	مهارات لغوية: تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلمين
Week 16	امتحان نهاية الفصل

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	Lab 1:
Week 2	Lab 2
Week 3	Lab 3
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	جامع الدروس العربية: الشيخ مصطفى الغلاييني	No
Recommended Texts	الجملة العربية: تأليفها وأقسامها د. فاضل السامرائي	No
Websites	https://www.almrsal.com/post/923401	

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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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.