Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

The Republic of Iraq

Ministry of Higher Education and Scientific Research

Ashur University

College of Engineering Technology

Description of the academic program

Department of Medical Device Technology Engineering

Academic year 2024-2025

Ashure University

Iraq - Baghdad - Al-Muthanna Airport Street

au.edu.iq

Academic Program Description Form

University Name: Ashur University

Faculty/Institute: Engineering Technology

Scientific Department: Medical Instrumentation Engineering Technology

Academic or Professional Program Name: Medical Instrumentation Engineering Technology

Final Certificate Name Bachelor's degree Medical Instrumentation Engineering Technology

Academic System: Bologna Process (semester) for first and second stages-Annual System for third and fourth stages

Description Preparation Date: 23/10/2024

File Completion Date: 23/10/2024

Signature:

Head of Department Name:
Prof. Dr. Saad S. Alkhfaji

Date: 10/10/2024

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 15-10-2024

Signature:

Approval of the Dean

1. Program Vision

The Technical Engineering College at Ashur University is a distinguished educational institution on a global scale, adopting the latest educational systems and offering high-quality technical engineering programs that align with scientific advancements and meet the demands of the job market.

2. Program Mission

The Technical Engineering College aims to prepare qualified technical engineering personnel for the job market by acquiring the necessary scientific and practical knowledge, as well as skills in their field of specialization. It seeks to provide high-quality technical engineering education by keeping pace with the rapid technological advancements in engineering worldwide.

3. Program Objectives

1-The implementation of specialized educational programs across all academic levels is essential for students to acquire both theoretical scientific knowledge and practical engineering skills, complemented by laboratory experiences. Additionally, it aims to equip students with the necessary competencies in their respective fields.

2-Keeping pace with global advancements in engineering and technical curricula, it is crucial to adopt innovative teaching and learning methods that foster creativity and innovation.

3-Efforts should be directed towards applying international academic accreditation standards to achieve institutional and programmatic accreditation.

4-Graduates should be empowered to work as cohesive teams and apply principles of collaboration to benefit the community.

5-Graduates must possess the ability to identify, formulate, and resolve engineering problems through applied research.

6-Enhancing scientific and technical collaboration, as well as partnerships with educational institutions at national, regional, and global levels, is vital.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

The department is currently working on completing the requirements for program accreditation, and according to the department's planned schedule, the accreditation files will be submitted by the end of June.

5. Other external influences

Keeping up with advancements in the field of medical devices and developing the academic curricula accordingly, in addition to benefiting from the curricula of scientific universities and the needs of the job market.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	9	24		
College Requirements	2	6		
Department Requirements	29	167		
Summer Training	2	Requirement without units		
Other				

7. Program Description

Credit hours		Course code	Course name	Year/Level	
practical	theoretical				
3	2	MU0241001	Fundamental of Electrical Engineering	First Year	Academic Program (Annual System)
0	3	MU0241002	Mathematics /1		
2	2	MU0241003	Medical Chemistry		
2	2	MU0241004	Medical Physics		
2	2	MU0241005	Computer Applications		
0	2	MU0241006	Mechanics		
0	2	MU0241007	Democracy and Human rights		
4	0	MU0241008	Engineering Drawing		
4	0	MU0241009	Workshops		
0	1	MU0241010	English		
3	2	MU0242001	Medical devices/1	Second Year	
2	2	MU0242002	Electronic components and circuits		
2	2	MU0242003	Medical Measurements and Transformers		
0	3	MU0242004	Mathematics/2		
2	2	MU0242005	Anatomy and physiology		
2	2	MU0242006	Clinical Chemistry Equipment		
2	2	MU0242007	Digital technologies		
2	1	MU0242008	Computer Applications/2		
0	1	MU0242009	English language II		
0	1	MU0242010	The crimes of the Baath Regiem in Iraq		
0	1	MU0242011	Arabic language		
3	2	MU0243001	Medical devices/2	Third Year	
2	2	MU0243002	Processor and microcomputer		
2	2	MU0243003	Power electronics		
2	2	MU0243004	Medical Communication Systems		
2	2	MU0243005	Electronic medical systems		
2	2	MU0243006	digital signal processing		
2	2	MU0243007	Electrical Technology		
2	1	MU0243008	Computer Applications /3		
0	1	MU0243009	English language III		

3	2	MU0244001	Medical devices/3	Fourth Year	
2	2	MU0244002	Control systems		
2	2	MU0244003	Radiation engineering		
2	2	MU0244004	Medical Laser Systems		
2	2	MU0244005	Advanced digital design		
0	2	MU0244006	Project management		
2	1	MU0244007	Computer Applications		
0	1	MU0244008	English language IV		
0	2	MU0244009	Professional Ethics		
6	0	MU0244010	Graduation Project		

8. Expected learning outcomes of the program

Knowledge	
Learning Outcomes 1	**A1- Developing work plans and programs, especially in the maintenance of medical devices** **A2-Supervising the implementation of works** **A3- Participation in committees related to medical devices activity** **A4- Participation in analyzing bids for medical devices and selecting the alternative**
Skills	
Learning Outcomes 2	**B1- Training engineers and technicians to operate and maintain medical devices** **B2- Installation and operation of medical devices supervision and implementation** **B3-Providing advice in the field of medical devices** **Preparing research and studies to improve the development of-B4 medical devices**
.....	Learning Outcomes 3
Values	
Learning Outcomes 4	**1- Providing assistance to the student and leading him to excellence** **2- Analyzing students' behavior and treating them fairly** **3- Caring for students with limited income and wage earners** **4- Good treatment and striving to spread love and respect among students**

Learning Outcomes 5	**1-The ability to understand and apply developments in the work environment** **2- Develops future plans and ideas that are compatible with the field of medical devices** **3- Increase and encourage organizational loyalty Developing employees' skills through workshops and courses**

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods

Daily attendance – semester evaluation – practical evaluation – final evaluation presentation– Quizzes – weekly reports

11.Faculty

Faculty members

Number of the teaching staff		Special requireme nts/skills (if any)	Specialization		Academic rank
Lecturer	**staff**	–	**Special**	**General**	
1	2	–	1	2	**Pof.**
_	2	–	2	_	**Asst.Prof**
1	7	–	5	3	**Lec. Dr**
_	2	–	1	1	**Lecturer**
1	9	–	5	5	**Asst.Lecturer**
3	22	–	14	11	**Total**

12. Professional development
Orientation of new faculty members
Developing programs for new members of the department, including developing guidance and orientation programs
Professional development for faculty members
Providing them with opportunities for continuous professional growth that enhance their capabilities and skills, develop their knowledge, raise the efficiency and quality of their ,performance, and enable them to contribute effectively to achieving the university's vision . mission, and strategic goals

13.**Acceptance Criteria**
Graduates of the sixth preparatory school, biology and applied branches Industrial secondary school graduates Technical institute graduates

14.**The most important sources of information about the program**
Library / Internet / Websites / Virtual Library Department, College and University Documents and Guide Department website within the university website Departments and faculties corresponding to the Department of Medical Devices Engineering Technology(Middle Technical University/Electrical Engineering Technical College)

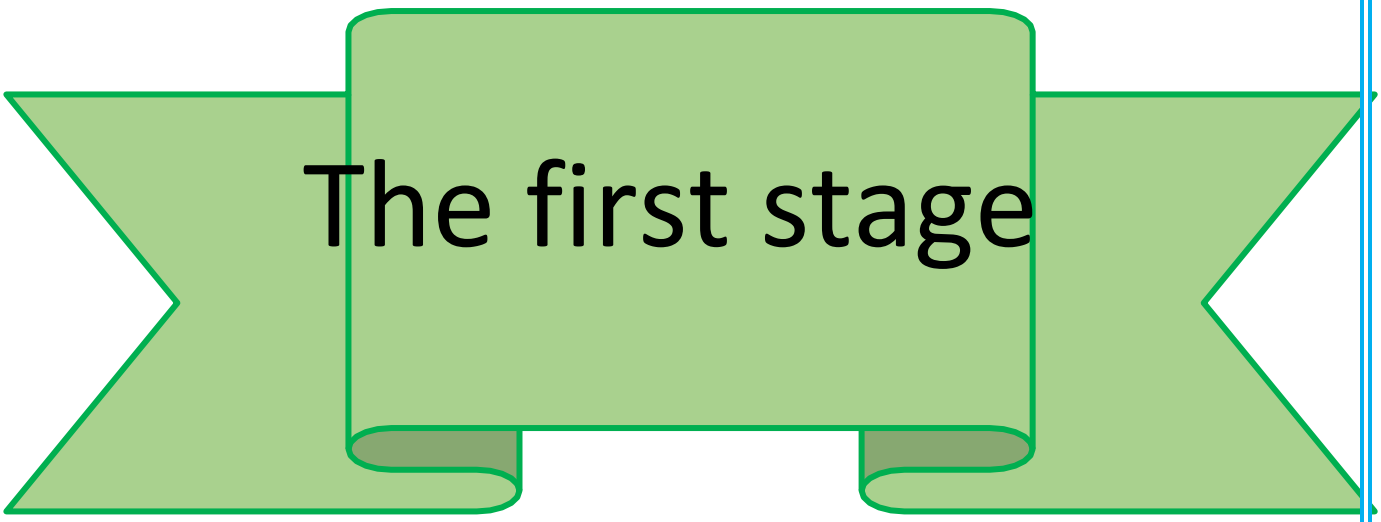
15. Program development plan
Continuous review of program implementation plans and recording of observations for subsequent follow-up by the administration. Ensuring the provision of a sufficient number of faculty members with matching specializations. Understand the levels of interaction between the college administration to guide and advise students and develop university and professional activities and services.

Program Skills Map														
Required learning outcomes of the program														
Ethics				Skills				knowledge				Basic or optional	Course name	Course code	/ Year Level
A4	A3	A2	A1	B 4	B 3	B 2	B 1	A4	A3	A2	A1				
	√	√		√	√		√	√	√	√	√	Basic	Principles of Electrical Engineering	MU0241001	First year
√	√	√		√		√		√	√		√	Basic	Mathematics 1	MU0241002	
	√					√	√	√		√	√	Basic	medicinal chemistry	MU0241003	
√			√	√		√	√	√		√	√	Basic	Medical Physics	MU0241004	
	√	√		√	√			√			√	Basic	Computer Applications	MU0241005	
√		√			√	√	√	√		√	√	Basic	Mechanics	MU0241006	
√	√	√	√		√							Basic	Democracy and human rights	MU0241007	
	√	√		√	√		√	√			√	Basic	Engineering drawing	MU0241008	
√	√		√		√	√	√			√	√	Basic	Workshops	MU0241009	
	√	√	√	√	√		√		√			Basic	English language	MU0241010	

√	√	√	√	√	√	√	√	√	√	√	√	Basic	Devices Medical/1	MU0242001	Second year
√			√	√	√			√	√		√	Basic	Electronic components and circuits	MU0242002	
√		√		√	√		√	√	√		√	Basic	Medical Measurements and Transformers	MU0242003	
√	√	√		√		√		√	√		√	Basic	Mathematics/2	MU0242004	
		√	√			√		√	√			Basic	Anatomy and physiology	MU0242005	
	√		√	√	√		√		√	√	√	Basic	Clinical Chemistry Equipment	MU0242006	
√		√		√	√	√	√	√	√		√	Basic	Digital technologies	MU0242007	
	√	√		√	√			√			√	Basic	Computer Applications/2	MU0242008	
√	√	√	√	√	√	√	√	√	√	√	√	Basic	English language	MU0242009	
√	√	√	√				√			√		Basic	The crimes of the Baath Regiem in Iraq	MU0242010	
	√	√			√				√			Basic	Arabic language	MU0242011	

√	√	√	√	√	√	√	√	√	√	√	√	Basic	Medical devices/2	MU0243001	Third year
√		√	√	√				√	√		√	Basic	Processor and microcomputer	MU0243002	
√			√	√	√		√	√	√		√	Basic	Power electronics	MU0243003	
√		√	√	√	√	√		√	√		√	Basic	Medical Communication Systems	MU0243004	
√		√	√			√		√	√		√	Basic	Electronic medical systems	MU0243005	
√		√	√		√	√		√	√	√	√	Basic	digital signal processing	MU0243006	
√		√		√	√	√	√	√	√	√	√	Basic	Electrical Technology	MU0243007	
	√	√		√	√			√			√	Basic	Computer Applications/3	MU0243008	
	√	√	√	√	√		√		√			Basic	English language	MU0243009	
√		√	√	√	√	√	√	√	√	√	√	Basic	Medical devices/3	MU0244001	Fourth year
√		√	√	√	√	√	√	√	√	√	√	Basic	Control systems	MU0244002	
	√		√	√	√	√	√	√			√	Basic	Radiation engineering	MU0244003	

√		√	√	√	√			√			√	Basic	Medical Laser Systems	MU0244004	
√		√	√	√	√	√	√	√			√	optional	Advanced digital design	MU0244005	
		√	√	√		√	√	√	√	√	√	Basic	Project management	MU0244006	
	√	√		√	√			√			√	Basic	Computer Applications/4	MU0244007	
	√	√	√	√	√		√		√			Basic	English language	MU0244008	
√	√	√	√		√	√			√			Basic	Professional ethics	MU0244009	
√	√	√	√	√	√	√	√	√		√	√	Basic	Graduation Project	MU0244010	


The first stage

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Drawing			**Module Delivery**	
Module Type	Support			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024014				
ECTS Credits	5				
SWL (hr/sem)	63				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Mr. Saheb Mahdi Mohammad		**e-mail**		
Module Leader's Acad. Title	Assoc. Prof.		**Module Leader's Qualification**	MSC.	
Module Tutor	Mr. Saheb Mahdi Mohammad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2024		**Version Number**	1.0	

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

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

Module Aims	The module aims for the Basics of Engineering Drawing courseware is to teach the student the basic commands necessary for professional 2D drawing, design, and drafting using AutoCAD. Upon completion of the course, the student will: • Become familiar with the AutoCAD user interface. • Understand the fundamental concepts and features of AutoCAD. • Use the precision drafting tools in AutoCAD to develop accurate technical drawings. • Present drawings in a detailed and visually impressive manner. • Develop a level of comfort and confidence with AutoCAD through hands-on experience.
Module Learning Outcomes	Upon completion of the course, students should be able to: 1. The student will describe key terms and concepts associated with drafting and the drafting profession. • Identifying software drafting tools (e.g. AutoCAD, Micro station, SolidWorks, and Google Sketch Up). 2. The student will identify elements of the AutoCAD software interface. • Starting the AutoCAD program from the start menu. • Using existing AutoCAD templates to create drawing documents. • Identifying file extensions (such as.dwg, dxf, dwt, and .bak) and file locations. • Creating, formatting, editing and saving an Auto CAD drawing. 3. The student will demonstrate an understanding of the skills necessary to create basic 2D AutoCAD drawings. • Drawing lines, curves, circles, ellipses, rectangles, polygons, and donuts. • Modifying a drawing using the Erase tool. • Identifying and using the various types of Object Snaps and Auto tracking. • Using the offset tool, drawing points, construction lines and rays. 4. The student will demonstrate the ability to modify an AutoCAD drawing. • Creating and managing multiple layers that define line color, line width, line type, etc. • Identifying and using object editing tools (such as fillet, chamfer, break, join, trim, extend, lengthen, and scale). • Arranging and patterning objects with move, copy, mirror, rotate, align, and array. 5. The student will demonstrate an understanding How to assign: Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space. 6. The student will demonstrate an understanding Dealing with: Text, Style, M text, Scale text, Spell,

	7. The student will demonstrate the Object viewing. • Zooming techniques • Panning techniques 8. The student will demonstrate the ability to output drawings in AutoCAD. 9. Drawing 3d modeling. 10. Drawing the Exercises.
Indicative Contents	**Basic Drawing & Editing Commands** [20 hrs.] • Drawing Lines • Erasing Objects • Drawing Lines with Polar Tracking • Drawing Rectangles • Drawing Circles • Undo and Redo Actions **Making Changes in Your Drawing** [4 hrs.] • Selecting Objects for Editing • Moving Objects • Copying Objects • Rotating Objects • Scaling Objects • Mirroring Objects • Editing with Grips **Display Control** [4 hrs.] • Zoom • Pan • Redraw • Clean Screen. **Adding Dimensions** [4 hrs.] •Dimensioning Concepts •Adding Linear Dimensions •Adding Radial and Angular Dimensions •Editing Dimensions **Hatching** [4hrs] •Hatching •Editing Hatches **Printing Your Drawing** [4 hrs.] •Printing Layouts • Print and Plot Settings **3D MODELLING, Convert** 2D to 3D, Solid Editing[19 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching engineering drawing using AutoCAD, there are several strategies that can be effective. Here are some recommendations: 1. Familiarize with the Software: Before diving into engineering drawing concepts, it's important to become familiar with the AutoCAD software. This includes understanding the user interface, basic tools, and commands. Start with introductory tutorials or online resources that cover the basics of AutoCAD. 2. Start with Fundamentals: Begin by teaching the fundamental concepts of engineering drawing, such as orthographic projection, isometric projection, dimensioning, and tolerancing. Explain the principles and techniques used in creating accurate and clear technical drawings. 3. Hands-on Practice: Engineering drawing is a practical skill, so provide ample opportunities for hands-on practice. Assign exercises and projects that require students to create different types of drawings using AutoCAD. 4. Encourage them to explore and experiment with various tools and commands. 5. Step-by-Step Instructions: Break down complex drawing tasks into smaller, manageable steps. Provide step-by-step instructions and demonstrations using AutoCAD, showing students how to execute each step effectively. This approach helps students understand the workflow and build their confidence. 6. Visual Aids and Examples: Utilize visual aids, such as slides, diagrams, and examples, to reinforce concepts. Show real-world engineering drawings and explain how they were created using AutoCAD. Visual representations can enhance understanding and make abstract concepts more tangible. 7. Group Activities and Collaboration: Promote collaboration among students by assigning group activities or projects. This allows them to work together, share knowledge, and learn from one another. Encourage students to discuss their approaches and problem-solving techniques related to engineering drawing in AutoCAD. 8. Provide Feedback: Regularly provide constructive feedback on students' drawings. Highlight areas for improvement, suggest alternative methods, and point out common mistakes. This feedback loop is crucial for students to refine their skills and develop a deeper understanding of engineering drawing principles. 9. Stay Updated with AutoCAD Features: AutoCAD is regularly updated with new features and enhancements. Stay up to date with these changes to ensure you're teaching the latest tools and workflows. Familiarize yourself with new capabilities that can improve efficiency and accuracy in engineering drawing. 10. Online Resources and Communities: Encourage students to explore online resources, tutorials, and communities dedicated to AutoCAD and engineering

	drawing. There are numerous websites, forums, and YouTube channels that offer valuable content and support for learning AutoCAD. 11. Project-Based Learning: Incorporate project-based learning into the curriculum, where students can apply their engineering drawing skills to real-world scenarios. Assign projects that simulate industry-related tasks, such as creating architectural plans, mechanical assemblies, or electrical schematics using AutoCAD.

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل 15 اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعي	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعي	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Introduction to Autodesk AutoCAD** • Starting the Software • User Interface • Working with Commands • Cartesian Workspace • Opening an Existing Drawing File Saving a Drawing File
Week 2	**Basic Drawing & Editing Commands** • Drawing Lines • Erasing Objects • Drawing Lines with Polar Tracking • Drawing Rectangles • Drawing Circles • Undo and Redo Actions
Week 3	**Projects - Creating a Simple Drawing** • Create a Simple Drawing • Create Simple Shapes
Week 4	**Drawing Precision in AutoCAD** • Using Running Object Snaps • Using Object Snap Overrides • Polar Tracking at Angles • Object Snap Tracking • Drawing with Snap and Grid
Week 5	**Making Changes in Your Drawing** • Selecting Objects for Editing • Moving Objects • Copying Objects • Rotating Objects • Scaling Objects • Mirroring Objects • Editing with Grips
Week 6	**Advanced Object Types** • Drawing Arcs • Drawing Polylines • Editing Polylines • Drawing Polygons • Drawing Ellipses
Week 7	**Advanced Editing Commands** • Trimming and Extending Objects • Stretching Objects • Creating Fillets and Chamfers

	• Offsetting Objects • Creating Arrays of Objects
Week 8	Mid-term exam
Week 9	**Adding Dimensions** •Dimensioning Concepts •Adding Linear Dimensions •Adding Radial and Angular Dimensions •Editing Dimensions **Text** •Working with Annotations •Adding Text in a Drawing •Modifying Multiline Text •Formatting Multiline Text •Adding Notes with Leaders to Your Drawing
Week 10	**Hatching** •Hatching •Editing Hatches
Week 11	3D modeling.
Week 12	Convert 2D To 3D.
Week 13	Exercises drawing
Week 14	**Printing Your Drawing** •Printing Layouts •Print and Plot Settings
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	D. A. Madsen, D. P. Madsen, and J. E. Briesacher, Engineering Drawing and Design, 5th ed., Clifton Park, NY: Delmar Cengage Learning, 2011.	Yes
Recommended Texts	F. E. Giesecke, A. Mitchell, H. C. Spencer, I. L. Hill, and J. T. Dygdon, Technical Drawing with Engineering Graphics, 15th ed., Upper Saddle River, NJ: Pearson, 2016.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering	

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 Principles			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024012				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Mr. Nawar Saeed Omran		**e-mail**		
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	MSc.	
Module Tutor	Mr. Nawar Saeed Omran		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2024		**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. To understand operating system, be familiar with its types. 2. To be familiar with the desktop. 3. To be familiar and manage files and folders. 4. To be familiar with the basic concepts of hardware components of the computer. 5. To be able to use the basic functions in control panel. 6. To recognize software types. 7. To be able to understand the basic similarities and differences among (MS Office) applications. 8. To be able to use MS Word program. 9. To be able to use MS Excel program. 10. To be able to use MS PowerPoint program. 11. To be able to use MS Outlook. 12. To be familiar with search engines and the World Wide Web. 13. To be able to use Google apps. 14. To be introduced to AI tools.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate understanding of operating systems, including their types. 2. Navigate and utilize the desktop effectively. 3. Manage files and folders proficiently. 4. Identify hardware components of a computer system. 5. Utilize the control panel efficiently. 6. Differentiate software types and their applications. 7. Effectively utilize essential applications such as MS Office. 8. Demonstrate proficiency in using the MS Word program. 9. Demonstrate proficiency in using the MS Excel program. 10. Demonstrate proficiency in using the MS PowerPoint program. 11. Utilize MS Outlook for email and scheduling purposes. 12. Navigate search engines and utilize the World Wide Web effectively. 13. Utilize Google apps for various tasks. 14. Basic Use of AI tools.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to Operating Systems: Definition, functions, and capabilities of an operating system. Types of operating systems (e.g., Windows, macOS, Linux) with examples. Differences between operating systems and software applications. Power

	options: computer power on/off and power settings. (3 hrs) Exploring the Desktop: Navigating the desktop environment. Using the start button and working with applications. Understanding the relationship between software and hardware, their differences, importance, and influence on each other. Introduction to software updates. Exploring the taskbar. (6 hrs) Files and Folders: Understanding the typical window and file management. Introduction to the Recycle Bin. Understanding file names and common extensions. (6 hrs) Computer Hardware: Identifying various computer types . Exploring components inside a computer, such as the microprocessor, system memory, and storage systems. Recognizing input/output devices and their interaction. (6 hrs) Familiarity with the control panel and its categories and usage. (6 hrs) Software Overview: Understanding software requirements and their implications for hardware. Introduction to different types of application software + Dealing with viruses and malwares (2 hrs) Main Screen Features: Common features found in word processing, spreadsheet, and presentation software. Understanding the ribbon, tabs, and status bar, and their specific functions in each application. (3 hrs) MS Office Basics: Definitions and key concepts in MS Office applications and Usage. (9 hrs) Google apps and Gmail (3hrs) Digital Citizenship: Identifying ethical issues in the digital realm, including intellectual property, copyright, and licensing. Protecting data and computers from software threats and understanding viruses. Ensuring online privacy and security. And basic understanding and usage for AI tools (3 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Incorporate a mix of theoretical study, hands-on practice, experimentation, and real-world applications to reinforce understanding and proficiency in each of the desired learning outcomes. Seek feedback, engage in discussions, and actively participate in exercises to enhance learning and address any gaps in knowledge.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 14 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 9	LO #1, #2, #3 and #6, #7
	Assignments	2	10% (10)	4 and 6	LO #4 ,#8, #12 and #5, #12
	Projects / Lab.	5	15% (15)	10,11, 12, 13 and 14,	LO #7, #12, #13 and #8 , #12, #13 and #9, #12, #13 and #10, #12, #13 and #11, #12, #13
	Report	1	5% (5)	6	LO #12, #7, #8 and #12
Summative assessment	**Midterm Exam**	3hr	10% (10)	8	LO #1 - #6
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to operating system and its types, the differences between operating systems and software applications; Common operating system features.
Week 2	Looking and navigation of the desktop; start button components ; Understanding Taskbar ,Software and hardware relationship.
Week 3	Software updates+, Files and folders looking at typical window.+ Understanding files and folders+ Libraries.
Week 4	Understanding Recycle bin; understanding file name and common extensions. View options + Computer hardware identifying computers
Week 5	Looking inside a computer (microprocessor, system memory, storage systems)+ recognizing input/ output devices + understanding how it works together.
Week 6	Understanding control panel categories + Understanding Ease of access + Understanding User account rights .
Week 7	What is software , application software + Avoiding and dealing Viruses and malwares.
Week 8	**Mid Term**
Week 9	MS office common features and differences .
Week 10	Basic concepts and Usage of MS Word + Basic concepts and Usage of MS Power Point.
Week 11	Basic concepts and Usage of MS Excell + Basic concepts and Usage of MS Outlook.
Week 12	Introduction to Google apps.
Week 13	Digital citizenship identifying ethical issues; protecting your data or computer.
Week 14	Basic understanding and usage for AI tools.
Week 15	**Preparatory week before the final Exam.**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Getting to know computer hardware + turn on and shut down options +looking at the desktop + using mouse (Menu, pointing, selecting, dragging, scrolling and execution)+ using start button
Week 2	Lab 2: Create a folder (and file) , Rename, Copy, Cut, find, shortcut +Recycle bin ; using task bar
Week 3	Lab 3: looking at a typical window +control buttons + move, resize a window+ view options+ select files + file options +using taskbar.

Week 4	Lab 4: Install, open, close, and(control panel- Programs) uninstall applications(internet and other sources); Control Panel (power options), Control Panel (add a device or printer), Control Panel (Project).
Week 5	Lab 5: Personalization (background and color) +(User Account (create a standard account, change password , picture and name) Control Panel- Clock and region (change date, time , and region) + Ease of Access (Narrator, Magnifier, on screen keyboard)).
Week 6	Lab 6: MS Office (word, Excel, Power point, outlook) Starting each program and identify the main screen in details as title bar, main ribbons, etc.
Week 7	Lab 7: MS Word (Home Tab, Insert Tab, Layout Tab, View Tab + Watermark, Page boarder and Page color).
Week 8	Lab 8:**Mid Term**
Week 9	Lab 9: MS Excel (Home Tab, Insert, Page layout, Formula, Data).
Week 10	Lab 10: MS Power Point (Home Tab, Insert, Design, Transition, Animation).
Week 11	Lab 11: MS outlook (Home Tab, send and receive) + Calendar.
Week 12	Lab 12: **Google apps Vs MS office.**
Week 13	Lab 13: Creating Gmail+ basic e-mail functions+ using google class. Using internet (Google scholar + fining courses and materials, Khan academy and finding resources).
Week 14	Lab 14: Using AI tools
Week 15	Preparation for Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Internet and Computing Core Certification	No
Recommended Texts		
Websites	https://alison.com/tag/microsoft Share and Discover Knowledge on SlideShare https://support.microsoft.com/en-us/training https://support.google.com/a/users https://edu.gcfglobal.org/en/topics/googleapps/# https://edu.gcfglobal.org/en/subjects/office/# https://chat.openai.com	

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	Differential Mathematics			**Module Delivery**	
Module Type	Support			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024013				
ECTS Credits	5				
SWL (hr/sem)	78				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Mr. Mohammad Hussain		**e-mail**		
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	MSc.	
Module Tutor	Mr. Mohammad Hussain		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2024		**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. To develop problem solving skills and understanding of Differential calculus through a broad range of Differentiation techniques. 2. To understand limits and theory of derivative and apply it on various types of functions. 3. This is the basic subject for all engineering fields. 4. Demonstrate basic knowledge and understanding of a core of plane analytical geometry, algebra and applied mathematics. 5. Introduce student to Derivatives of trigonometric functions and their inverses.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recall basic concepts of calculus: functions, variables, limits, and continuity. 2. Use the limit laws to evaluate the limit of a function. 3. Discuss continuity at a point and continuity over an interval. 4. Understand transcendental functions and how a function and its inverse are related. 5. Define Plane analytical geometry and identify how conic sections are formed in addition to define both in words and in algebraic formulae, a circle and its center and radius, and an ellipse and its foci. 6. Learn how to convert rectangular coordinates to polar coordinates and vice versa, as well as plot points using polar coordinates. 7. Differentiate algebraic and transcendental functions 8. Midterm 9. Discuss Chain rules and applications of the derivatives. 10. Define determinants and understand their relation to matrices . Also explain the methodology for finding a determinant. 11. Learn how to solve Linear equations by Cramer's rule.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Limits and Continuity, Trigonometric functions, and their inverses. Hyperbolic and inverse hyperbolic functions, Exponential function and logarithmic function. Plane analytical geometry, parabola & ellipse, hyperbola. [25 hrs] 1. Polar coordinates, Theory and rules of derivatives, Implicit Differentiation and Chain rules, Derivatives of trigonometric functions and their inverses. Derivatives of Transcendental functions and their inverses. [33 hrs] 2. Properties of determinants, Solution of Linear equations by Cramer's rule. [10 hrs] 3. Revision problem classes [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

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	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	6 and 10	LO #2, #7, #9, and #10
	Online assignments	2	10% (10)	4 and 12	LO #1 - #5 and #6 - #10
	Report	1	10% (10)	14	LO #1 - #8
	On Site assignments	2	10% (10)	2 and 5	LO #1 - #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	LO #1 - #10
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Limits and Continuity
Week 2	Transcendental functions- trigonometric functions, and their inverses.
Week 3	Transcendental functions-Hyperbolic and inverse hyperbolic functions
Week 4	Transcendental functions-Exponential function and logarithmic function.
Week 5	Plane analytical geometry, parabola & ellipse, hyperbola.
Week 6	Polar coordinates.
Week 7	Mid-term Exam
Week 8	Theory and rules of derivatives.
Week 9	Implicit Differentiation and Chain rules.
Week 10	Derivatives of trigonometric functions , Derivatives of inverse trigonometric functions.
Week 11	Derivatives of the exponential and natural logarithms functions.
Week 12	Derivatives of Hyperbolic and inverse hyperbolic functions.
Week 13	Applications of the derivatives.
Week 14	Determinants and properties of determinants.
Week 15	Solution of Linear equations by Cramer's rule. + Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Engineering Mathematics I (**pdf**)	No
Recommended Texts	Thomas ' Calculus (**pdf**) Fouteenth edition Based on the original work by GEORGE B. THOMAS, JR.	No
Websites	https://elearningatria.files.wordpress.com/2013/10/differential-calculus-1-23.pdf http://dl.konkur.in/post/Book/Paye/Thomas-Calculus-14th-Edition-%5Bkonkur.in%5D.pdf	

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Medical Chemistry			**Module Delivery**	
Module Type	Support			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024017				
ECTS Credits	7				
SWL (hr/sem)	94				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Ms. Al-Hawraa Alaa		**e-mail**		
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.SC	
Module Tutor	Ms. Al-Hawraa Alaa		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2024		**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims **أهداف المادة الدراسية**	1- To write and balance chemical equation which many calculations depend on. 2- To convert chemical formula to components composition percent or to conclude empirical formula depending upon composition percent. 3- To predict about the economic pathway for specific reaction to happen depending upon stoichiometric calculations of balanced chemical equations. 4- To Know how to prepare buffers with different ranges of pH using acids with suitable dissociation constant of acid. 5- To understand the effect of common ions on equilibrium of reversible reactions. 6- To focus on theoretical working principles of spectrophotometric instruments. 7- to discuss the importance of isotopes in diseases treatment and diagnosis.
	At ending of course, the student will: 1- Able to give chemical compounds their systematic names and to write their chemical formulae. 2- Know how to calculate concentrations of chemicals and to express them in various concentration terms. In addition to convert one term to another. 3- Calculate the compound composition percent according to chemical formula or know empirical formula depending on compounds composition percent. 4- Write chemical equations of different reactions and balance them and predict the limiting reactant in addition to the expected weight of products. 5- Estimate the reaction direction according to calculation of equilibrium constant of reversible reactions. 6- Know how to prepare buffers and how buffer work? 7- Understand importance and wide application of slightly soluble salts. 8- Perform the statistical treatment of analytical results and source of errors. 9- Recognize the importance of galvanic cells in current generation and role of electrolytic cells in metallic electroplating. 10- Consider zero, 1st and 2nd laws of thermodynamic processes, and evaluate thermodynamic functions of work, enthalpy, heat, internal energy and giving judgment of spontaneous process or not by entropy and Gibbs free energy. 11- List the components of photometric determination techniques, in addition to principals of their works. 12- Identify the photometric instrumentations such as FIS, FT-IR spectrophotometer, and mass spectrophotometry. 13- Emphasize the vital role of isotopes in diagnosis and diseases treatment.

Indicative Contents **المحتويات الإرشادية**	Isotopes, Chemical formula, Units conversion (5 hr) Normality, Formality, Molarity, Molality, Mole fraction, Mill equivalent, ppm, ppb, mass percent, mass/vol percent. (10 hr) Stoichiometry (4 hr) Chemical equilibrium (4hr) dissociation constant (5 hr) pH (4 hr) Buffers (5 hr) common ion (4 hr) Solubility product constant (4 hr) Statistical treatment, average, range, standard deviation, variance, Absolute error, relative error. (6 hr) Redox reactions, Electrochemistry, electrolytes, Nernst equation, cell potential (6 hr). 1st law of thermodynamic, Reversible and irreversible process, Heat capacities, adiabatic process, Isothermal processes (6 hr). 2nd law of thermodynamic, entropy, Gibbs free energy (4 hr). Photochemistry, electromagnetic spectrum, Beer Lambert law (6 hr). IR Spectrophotometer, mass spectroscopy, FIS, FES (6 hr). Potentiometer, conductive meter, pH-meter (5 hr).

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	homework assignments, written exam, Quizzes, seminars, reports, practical tests and Online tests

Student Workload (SWL) **الحمل الدراسي للطالب**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	94	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	6
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	81	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	5
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	175		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	15min/ 2 times	20% (20)	5th , 12th	LO# 1st – 5th LO# 10th – 12th
	Online Assignments	5min/ 2 times	10% (10)	6th ,13th	LO# 1st LO# 10th
	Lab.	Each lab/ 5 times	5% (5)	3rd , 4th , 5th , 6th , 7th	LO# 1st -2nd , LO# 3rd LO# 4th LO# 5th LO# 6th – 7th
	Seminar	10min/ One time	5% (5)	6th	LO# 2nd – 5th
Summative assessment	**Midterm Exam**	180 min/ one time	10%	8th	LO# 1st – 10th
	Final Exam	240min/ one time	50%	16th	
Total assessment			100%		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Units conversion, Isotopes, Chemical formula and chemical equation
Week 2	Methods of expressing analytical concentrations: Normality, Formality, Molarity, Molality, Mole fraction, Mill equivalent, ppm, ppb, wt. and vol. percent ratio.
Week 3	Stoichiometry
Week 4	Chemical equilibrium
Week 5	Acid-Base dissociation constant
Week 6	pH-scale, buffer solution+ Solubility of precipitations, common ion effect
Week 7	Mid-term Exam
Week 8	Errors & statistical treatment of analytical data sources of errors, types of errors, average mode, range, average derivation, standard deviation, relative standard deviation, variance, method of expressing accuracy, Absolute error, relative error.
Week 9	Redox reactions, balancing of redox equation
Week 10	Electrochemistry: electrochemical cells, types of electrodes, electrolytes, Nernst equation, cell potential

Week 11	Thermodynamic, Zero and first law of thermodynamic, Reversible and irreversible expansion, Heat capacities, adiabatic expansion, Isothermal processes.
Week 12	Second law of thermodynamic: spontaneous processes, entropy and Gibbs free energy.
Week 13	Photochemistry (spectrophotometer analysis), Regions of electromagnetic spectrum, Absorption and emission of electromagnetic spectrum, Beer Lambert law, instrumentations components of spectrophotometer.
Week 14	IR Spectrophotometer, mass spectroscopy, flame ionization spectrophotometry.
Week 15	Potentiometer, conductive meter, pH-meter and some other applications of chemical sensors+ Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Principals of qualitative analysis.
Week 2	Qualitative analysis of cations of 1st and 2nd groups.
Week 3	Qualitative analysis of cations of 3rd and fifth groups.
Week 4	Introduction to Quantitative (volumetric) analysis and types of standard substance in titration, principles and calculations of titration.
Week 5	How to prepare solution of primary standard materials and to standardize secondary standard substance of HCl, (acid-base titration)
Week 6	Standardization secondary standard substance of NaOH and its application by determination of vinegar acidity.
Week 7	Determination of residual chloride in tape water by titration against silver nitrate (precipitation titration).

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		
Recommended Texts	**1- ESSENTIALS OF GENERAL CHEMISTRY By EBBING GABBON RAGSDALE 2- CHEMICAL PRINCIPLES By Steven S Zumdahl -4th edition**	**No**

Websites	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
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	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	Medical physics		**Module Delivery**	
Module Type	Basic		☒ **Theory** **Lecture** ☒ **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	UOMU024022			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	**Semester of Delivery**	2	
Administering Department	MITE	**College**	CETE	
Module Leader	Ms. Rabab Razak	**e-mail**		
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc.	
Module Tutor	Ms. Rabab Razak	**e-mail**		
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date	01/03/2025	**Version Number**	1	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- to recognize the influence of forces on the human body Identify how the skeleton works 2- to show how pressure affects the body's organs Recognize physical activity of the lungs and breathing 3- to demonstrate the physics of the cardiovascular system and the urinary system 4- to distinguishes the basic principles using the applications of electricity and magnetism in medicine 5- to shall be acquainted with respiratory, cardiovascular and cardiovascular equipment 6- to distinguishes the basic principles, using the sound waves in medicine and the use of x-rays in the diagnosis and identification of diseases
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1- Understand the difference between the Forces. 2- Know the bone has at least six functions. What are the main components of the bone, and to study the methods of Measurement the minerals quantity in the bone 3- know methods of diathermy 4- understand how Energy change in the body 5- know pressures inside the body parts and measure it 6- understand how to work the lungs and How the blood and lungs interact 7- know nervous system and the neuron 8- know the graphing devices of the body organs 9- know the applications of Electricity and Magnetism in Medicine 10- know the application of sound in medicine, know sonar devices 11- know the application of light and laser in medicine 12- know Major components of the cardiovascular system 13- know physics of nuclear medicine 14- know the x- ray device
Indicative Contents المحتويات الإرشادية	1- Define the Forces , Frictional Forces , Dynamics (4hrs) 2- functions of the skeleton and Bone consists of quite different materials and how to measure mineral in the bones (5 hrs) 3- Types of thermometers , Heat therapy, Cryogenics (4hrs) 4- Sphygmomanometer, blood pressure, bladder pressure , tonometer(4hrs) 5- Function of Lungs & Breathing, breath rate, airways, Dalton’s law of partial pressures(2hrs) 6- The nervous system and the neuron, Electrocardiogram, Electro retion

	gram (ERG), The magneto cardio gram (MCG)(4hrs) 7- Magnetic signals from the heart –magneto cardiogram(2hrs) 8- Macro shock, Micro shock (2hrs) 9- General Properties of Sound, Acoustic Impedance, Absorption, A-mode Display, Doppler Ultrasound(4hrs) 10- Endoscope, cytoscopes, Emissive IR photography.(4hrs) 11- Laser, population inversion, xray (4hrs) 12- Physics of the cardiovascular system (4 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	120	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	180		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	4, 11	LO # 1-3 and 8-10
	assessment	2	10% (10)	9, 13	LO # 8 and 11-12
	Reports	1	10% (10)	Continuous	
	practical test	2	10% (10)	7 , 12	LO # 1-6 and 7-11
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	7	LO # 1-7
	Final Exam	3 hr.	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Forces on and in the body.
Week 2	Physics of the skeleton.
Week 3	Heat & cold in medicine
Week 4	Energy, work and power of the body.
Week 5	Pressure in body organs
Week 6	Physics of the lungs and breathing.
Week 7	**Mid Term Exam** + Physics of cardiovascular system
Week 8	Physics of urinary system.
Week 9	Electricity within the body.
Week 10	Sound in medicine and physics of hearing.
Week 11	Light in medicine and physics of vision.
Week 12	Diagnostic X-rays
Week 13	Physics of nuclear medicine (radioisotopes in medicine).
Week 14	Physics of radiation therapy
Week 15	Radiation protection
Week 16	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to laboratory tools
Week 2	Lab 2: the simple pendulum
Week 3	Lab 3: hook’s law
Week 4	Lab 4: the blood pressure
Week 5	Lab 5: the friction
Week 6	Lab 6: the speed of sound
Week 7	Lab 7: the laser
Week 8	Lab 8: viscosity of liquids

Week 9	Lab 9: The cylindrical body
Week 10	Lab 10: The convex lens
Week 11	Lab 11: the concave lens

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Recommended Texts	Introductory Physics I Elementary Mechanics by Robert G. Brown	NO
Websites	https://webhome.phy.duke.edu/~rgb/Class/intro_physics_1/intro_physics_1.pdf	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Programming and Applications I**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU024026**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGII	**Semester of Delivery**		3
Administering Department		MIET	**College**	EETC	
Module Leader	Mr. Nawwar Saeed		**e-mail**		
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		M.Sc
Module Tutor	Mr Nawwar Saeed		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2024		**Version Number**	١.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Understanding the fundamental concepts of MATLAB programming language environment. 2. The students will understand and learn how to use MATLAB as an effective programming language. 3. The students will be able to solve different mathematical and engineering problems as well as using plotting functions and design projects using codes or GUI. 4. Students will acquire the knowledge of basic MATLAB syntax such as: variables, input, output, vectors, matrices, functions, plotting, and GUI, 5. The students will gain the necessary skills to design and implements appropriate algorithms that solve problems dealing with different mathematical and engineering applications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the MATLAB environments and windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window). 2. The students learn how to write first program and learn Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns. 3. Explain how to use variables and assignment statement, logical operator. 4. Practice on using Arrays, Built in functions, Basic Matrix Functions(sum, max, min, mean, magic, diag, length, size, median, prod, sort). 5. Learn how to perform basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits). 6. Understand arguments and return values, M-file, input-output statement. 7. Train on using control Statements (Conditional statements: If, Else, Elseif, switch case) 8. Identify the repetition statements: (While statement, For statement). 9. Learn how to use combination of conditional and repetition statements. 10. Understand the procedures and functions (a custom-made MATLAB function, define the name of the function, the input and the output variables, Calling Functions). 11. Learn how to handle graphics and user interface. 1.pre-defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects. 12. Train of GUI Interface (Attaching buttons to actions, Getting Input, Setting Output).
Indicative Contents المحتويات الإرشادية	1. Window, Workspace Window, Command History window, Help Window, Editor Window. (3 hr) 2. Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns. (5 hr) 3. variables and assignment statement, logical operator. (5 hr)

	4. sum, max, min, mean, magic, diag, length, size, median, prod, sort. (2 hr) 5. Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits. (2 hr) 6. M-file, input-output statement. (2 hr) 7. Conditional statements: If, Else, Elseif, switch case. (3 hr) 8. While statement, For statement. (4 hr) 9. conditional and repetition statements. (4 hr) 10. accustom-made MATLAB function. (4 hr) 11. GUI. (4 hr) 12. GUI attaching buttons to actions, Getting Input, Setting Output. (4 hr)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students. Moreover, motivate the creative side by posing various problems to students and urging them to find appropriate solutions. Also forming work teams to assess the results of their work and change their structure periodically to develop the spirit of cooperation and development and motivate students to make intensive efforts to work different roles.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	15% (20)	5, 10	LO #1, 2, 3, 4,7,8,9 and 10
	Assignments	2	15% (20)	6, 13	LO # 9 and 10
	Projects / Lab.	10	10% (10)		
	Report	N/A			
Summative assessment	**Midterm Exam**	3hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, MATLAB Environment, MATLAB Windows(Command Window, Workspace Window, Command History window, Help Window, Editor Window).
Week 2	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.
Week 3	Variables and assignment statement, logical operator.
Week 4	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).
Week 5	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).
Week 6	Arguments and return values, M-file, input-output statement,+ + Control Statements (Conditional statements: If, Else, Elseif, switch case)
Week 7	Mid-Exam
Week 8	Repetition statements: (While statement, For statement)
Week 9	Combination of conditional and repetition statements I
Week 10	Combination of conditional and repetition statements II
Week 11	Procedures and Functions (a custom-made MATLAB function, define the name of the function, the input and the output variables, Calling Functions)
Week 12	Handle graphics and user interface. 1.pre-defined dialogs 2. Handle graphics a) Graphics

	objects b) Properties of objects c) Modifying properties of graphics objects
Week 13	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I
Week 14	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) II
Week 15	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction, MATLAB Environment, MATLAB Windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window).
Week 2	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.
Week 3	Variables and assignment statement, logical operator.
Week 4	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).
Week 5	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).
Week 6	Arguments and return values, M-file, input-output statement
Week 7	Control Statements (Conditional statements: If, Else, Elseif, switch case)
Week 8	Repetition statements: (While statement, For statement)
Week 9	Combination of conditional and repetition statements I
Week 10	Combination of conditional and repetition statements II
Week 11	Procedures and Functions(a custom-made Matlab function, define the name of the function, the input and the output variables, Calling Functions)
Week 12	Handle graphics and user interface. 1.Pre-defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects
Week 13	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I
Week 14	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) II

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to MATLAB for Engineers William J. Palm III	yes
Recommended Texts	INTRODUCTION TO MATLAB FOR ENGINEERING STUDENTS ,David Houcque	
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	Human Rights and Democracy			**Module Delivery**	
Module Type	Support			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	UOMU000004				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1	**Semester of Delivery**		1
Administering Department		MITE	**College**	CETE	
Module Leader	Ms. Neeran Mohammad		**e-mail**		
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		M.Sc.
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		19/11/2024	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module aims to: 1. To provide students with a comprehensive understanding of the historical development of human rights and their significance in contemporary society. 2. To familiarize students with the concept and characteristics of human rights, enabling them to analyze and evaluate various human rights issues and challenges. 3. To explore the different generations of human rights, their evolution over time, and the implications for individuals and communities. 4. To examine the role of human rights in ancient civilizations and Abrahamic religions, highlighting the contributions and influences of these historical contexts. 5. To investigate the international and regional recognition of human rights through the study of key charters, conventions, and declarations, enabling students to comprehend the global framework for human rights protection and promotion.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate a comprehensive understanding of the fundamental concepts and techniques of differential calculus, including limits, derivatives, and their applications in engineering contexts. 2. Apply differentiation techniques proficiently to solve a wide range of engineering problems, such as optimization, motion analysis, and cost and revenue optimization. 3. Utilize transcendental functions effectively in engineering applications, demonstrating competence in working with exponential, logarithmic, and inverse trigonometric functions. 4. Apply the principles of differential equations to model and analyze engineering systems, including growth and decay phenomena and electrical circuits. 5. Employ critical thinking and analytical skills to tackle real-world engineering scenarios, utilizing differential calculus concepts to develop innovative solutions.
Indicative Contents المحتويات الإرشادية	1. Historical Evolution of Human Rights: This content will focus on tracing the historical development of human rights, from ancient civilizations to the modern era. It will explore significant milestones and events that shaped the concept of human rights over time. [16 hrs.] 2. Conceptual Foundations of Human Rights: This section will delve into the theoretical underpinnings and key concepts of human rights. It will cover topics such as universality, indivisibility, and the inherent dignity of every individual as the basis for human rights. [16 hrs.]

	3. Generations of Human Rights: This content will examine the different generations or categories of human rights, including civil and political rights, economic, social, and cultural rights, and solidarity rights. Students will explore the interdependence and interrelatedness of these rights. [16 hrs.] 4. Human Rights in Practice: This section will analyze real-world examples and case studies to illustrate the application of human rights principles. It may include topics such as human rights violations, human rights advocacy, and the role of international and regional human rights mechanisms. 5. Emerging Issues in Human Rights: This content will explore contemporary challenges and emerging issues in the field of human rights. It may cover topics such as technology and human rights, environmental rights, rights of vulnerable groups, and the intersectionality of human rights with other fields such as gender, race, and socio-economic factors. [16 hrs.]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The module will employ various learning and teaching strategies to enhance students' understanding and engagement. These strategies will include: 1. Lectures: Traditional lectures will be delivered by the instructor to provide foundational knowledge and concepts related to human rights. Lectures will offer comprehensive explanations, historical context, and theoretical frameworks. 2. Discussions and Debates: Interactive discussions and debates will be conducted to encourage critical thinking and active participation. Students will have the opportunity to express their opinions, engage in thoughtful debates, and analyze different perspectives on human rights issues. 3. Case Studies: Real-life case studies will be examined to illustrate the application of human rights principles in different contexts. Students will analyze and discuss these cases to develop problem-solving skills and gain a deeper understanding of the practical implications of human rights. 4. Group Projects: Collaborative group projects will be assigned to promote teamwork and research skills. Students will work together on specific human rights topics, conduct research, and present their findings to the class. This approach fosters teamwork, communication, and research abilities. 5. Guest Speakers: Inviting guest speakers, such as human rights activists, legal experts, or representatives from relevant organizations, will provide students with firsthand insights into the practical aspects of human rights work. Guest speakers can share their experiences, expertise, and engage in interactive discussions with students. 6. Multimedia Resources: Utilizing multimedia resources such as videos, documentaries, and online platforms will enhance students'

	understanding and engagement with human rights topics. These resources can present real-life examples, testimonies, and visual representations to complement the theoretical aspects of the module. 7. Critical Analysis and Reflection: Assignments and assessments will encourage students to critically analyze human rights issues, reflect on their personal perspectives, and evaluate the impact of human rights violations and advancements. This will develop their analytical skills and foster a deeper understanding of the complex nature of human rights. 8. Independent Study: Students will be encouraged to engage in independent study, including reading relevant textbooks, scholarly articles, and reports. This will enable them to deepen their understanding of specific human rights topics, broaden their knowledge base, and develop self-directed learning skills. 9. Overall, these learning and teaching strategies aim to create an interactive and engaging learning environment, fostering critical thinking, active participation, and a deeper understanding of human rights principles and their practical application.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	73	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	15% (15)	5, 10	LO #1, #2,and #3
	Assignments	2	15% (15)	2, 12	LO # 4 and #5
Summative	**Midterm Exam**	2 hours	20% (20)	7	LO # 1-# 3

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1:	Introduction to Human Rights (1 week). • Historical Development of Human Rights. • Concept and Characteristics of Human Rights. Importance and Relevance of Human Rights.
Week 2:	Human Rights in Ancient Civilizations (1 week). • Examination of Human Rights in Ancient Societies. • Contributions of Ancient Civilizations to Human Rights Principles.
Week 3:	Human Rights in Abrahamic Religions (1 week). • Exploration of Human Rights in Judaism, Christianity, and Islam. • Emphasis on the Personality of Prophet Muhammad (PBUH) and his Contribution to Human Rights.
Week 4:	Human Rights in the Medieval and Modern Ages (1 week). • Evolution of Human Rights during the Middle Ages and Modern Era. • Impact of Enlightenment and Renaissance on Human Rights.
Week 5:	Contemporary International Recognition of Human Rights (1 week). • Analysis of International Human Rights Instruments and Treaties. • Focus on the Universal Declaration of Human Rights (1948).
Week 6:	Regional Recognition of Human Rights (1 week). • Examination of Regional Human Rights Systems and Mechanisms. • Exploration of Non-Governmental Organizations' Role in Promoting Human Rights.
Week 7:	Human Rights in International Charters (1 week). • Study of Key International Charters and Conventions. • In-depth Analysis of the Universal Declaration of Human Rights (1948).
Week 8:	Human Rights in National Constitutions (Iraqi Constitutions) (1 week). • Examination of Human Rights Provisions in Iraqi Constitutions. • Comparative Analysis of Constitutional Safeguards for Human Rights.
Week 9:	Human Rights in Iraq after 2003 (Iraqi Constitution 2005) (1 week). • Overview of Human Rights Developments in Iraq post-2003. • Analysis of the Iraqi Constitution of 2005 and its Impact on Human Rights.
Week 10:	Safeguards of Human Rights at Various Levels (1 week). • Exploration of International, Regional, and National Mechanisms for Protecting Human Rights. • Focus on Genocide as a Violation of Human Rights.
Week 11:	Financial and Administrative Corruption (1 week). • Understanding the Phenomenon of Financial and Administrative Corruption. • Causes and Consequences of Corruption and Efforts to Combat it.
Week 12:	Week 12: Right to Water and Sustainable Management (1 week). • Importance of the Right to Water as a Human Right. • Strategies for Sustainable Water Management and Ensuring Access to Clean Water.
Week 13:	Week 13: Terrorism and its Impact on State and Society (1 week). • Examination of Terrorism and its Threat to Human Rights. • Analysis of Counter-Terrorism Measures and Balancing Human Rights Considerations.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. "حقوق الإنسان في العالم العربي: القضايا والتحديات"، تأليف: علي حجازي وجمال شعت. الطبعة: الطبعة الثانية، العام: 2017. 2. "مبادئ حقوق الإنسان: المفاهيم والقضايا الحديثة"، تأليف: أحمد المجالي وغسان حمدان. الطبعة: الطبعة الأولى، العام: 2019.	Yes
Recommended Texts	1. "حقوق الإنسان والديمقراطية"، تأليف: مصطفى كامل محمود. الطبعة: الطبعة الأولى، العام: 2015. 2. "تاريخ حقوق الإنسان في العصور القديمة والوسطى"، تأليف: نبيل رزق. الطبعة: الطبعة الثالثة، العام: 2012. 3. "حقوق الإنسان في العراق: الواقع والتحديات"، تأليف: سعد الله عباس. الطبعة: الطبعة الأولى، العام: 2014. 4. "حقوق الإنسان في العراق: المفهوم والتطور"، تأليف: عبد الكريم السامرائي. الطبعة: الطبعة الأولى، العام: 2018. 5. "حقوق الإنسان في العراق: بين التحديات والآفاق"، تأليف: محمد السامرائي ولقاء الحربي. الطبعة: الطبعة الأولى، العام: 2020.	No
Websites	The Collage E-Library	

Week 14:	Human Rights in Contemporary Issues (1 week). • Exploration of Current Human Rights Challenges and Debates. • Discussion on Emerging Human Rights Issues in the Modern World.
Week 15:	Review and Conclusion (1 week). • Recap of Key Concepts and Themes Covered in the Module. Discussion on the Importance of Upholding and Promoting Human Rights in Today's Society.
Week 16	Preparatory week before the final Exam

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	Engineering Workshops			**Module Delivery**	
Module Type	Basic			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024025				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Mr. Saheb Mahdi		**e-mail**		
Module Leader's Acad. Title	Assoc. Prof		**Module Leader's Qualification**	M.Sc	
Module Tutor	Mr. Saheb Mahdi		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01-03-2025		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To explain the lathe workshop: various measuring devices and how to use them. How to operate the lathe and use different tools and cutting tools. 2. To explain the welding and gas welding processes and familiarize yourself with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a simple exercise. 3. To understand the electrical transformers and their types: magnetic circuits; electrical circuits; measuring the wire diameters of the transformer. 4. To understand the drawing of a circuit for establishing (the lamp ladder) two roads using a two-way switch—a practical application of the circuit. 5. To learn how to use the different measuring devices in the workshop (such as a multimeter, oscilloscope, etc.). 6. To learn how to use caustics, soldering irons, and various printed electronic circuits, identify how to install them, and install various electronic components on them. 7. To understand different types of coils and methods of checking them. Different types of capacitors differ in terms of the type of insulator used between the capacitor plates and the methods of checking them. The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors: how to check them. 8. To understand the different types of switches used in electronic devices and their examination methods. Different types of fuses There are different types of resistors in terms of the material they are made of. Types of semiconductor diodes and transistors and finding the equivalents Semiconductor check, diode check, and transistor check. 9. To understand how to read the electronic map and how to track faults on the electronic map How to install and solder electronic components on the printed board Implementation of a simple electronic circuit on the printed board integrated electronic circuits: identify the types of these circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Recognize the methods of work on the lathe. 2. Cuts metals with a cutting and punching machine. 3. Install some simple structures. 4. Providing the student with manual experience and scientific proficiency in it. 5. Learn about electronic components. 6. Electronic components exchange is used to build and solder simple circuits.

	7. Examine electronic circuits and their components. 8. Read the electronic map and learn how to track faults on the electronic map. 9. How to install and solder electronic components on the printed board. 10. Implementation of a simple electronic circuit on the printed board. 11. Removing solder from circuits for the purpose of lifting and replacing. 12. How to design electronic circuits on the printed board. 13. Methods of soldering integrated circuits.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Lathe workshop, measuring devices, different tools, cutting tools, welding, gas welding, and point welding. [8 hrs.]. Electrical transformers, magnetic circuit, and electrical circuits. [6 hrs.]. Different measuring devices in the workshop (such as an ovometer, oscilloscope, power supply, etc.) [8 hrs.]. Soldering iron and printed electronic circuits [4 hrs.]. Coils, capacitors, and resistors [6 hrs.]. Switches and fuses [4 hrs.]. Semiconductor diode, and transistor [6 hrs.]. Electronic map, faults on the electronic map, and design electronic circuits on the printed board [8 hrs.]. Implemented a simple electronic circuit on the printed board [4 hrs.]. Integrated electronic circuits [4 hrs.].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
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	**Daily assessment**	1	10% (10)	3, 8	LO # 1-2 and 4-6
	weekly assessment	1	10% (10)	9, 13	LO # 3 and #4
	Projects / Lab.	1	10% (10)	Continuous	
	practical test	1	10% (10)	2	LO # 7
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	7	LO # 1-7
	Final Exam	3 hr.	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Lathe workshop: various measuring devices and how to use them. How to operate the lathe and use different tools and cutting tools
Week 2	Lab 2: Welding and gas welding, and familiarization with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a simple exercise.
Week 3	Lab 3: Electrical transformers: their types magnetic circuits; electrical circuits; opening transformers; taking information from the old transformer for primary and secondary coils measuring the wire diameters of the transformer; measuring the plastic coil template rewinding primary and secondary coils.
Week 4	Lab 4: Drawing a circuit for establishing two roads using a two-way switch is a practical application of the circuit. Identifying electrical collectors-their types, their use, thermal follow-ups, and time position.
Week 5	Lab 5: Training on making electrical installations (establishing inside tubes).Pipe cutting process: dental work, pipe bending, using drag springs.
Week 6	Lab 6: How to use the different measuring devices in the workshop (such as a multimeter, oscilloscope, etc.).
Week 7	Lab 7: How to use caustics: types of caustics used in the workshop; caustic welding training. Types of solder used: auxiliary materials for soldering; soldering some wires with each other

	and with some components. How to use a soldering iron and a soldering absorbent kit such as a solder sucker or solder remover, training on some electronic components, and lifting them from the printed plate. Various printed electronic circuits, identifying how to install them, and the installation of various electronic components on them.
Week 8	Lab 8: Coil types, methods of checking them, electrical transformers, types, checking, auto-transformer, the difference between an auto-transformer and an ordinary transformer. The different types of capacitors in terms of the type of insulator used between the capacitor plates, the effort that the capacitor bears, and reading the values of the capacitors using the different methods used in coding How to check the amplifiers and how to switch them. Making connections of the capacitors in parallel, series, and mixed on the printed board with the examination.
Week 9	Lab 9: The different types of switches used in electronic devices and their examination methods, the current that each switch bears, and the use of each type.Types of fuses used in electronic circuits, types and diameters of wires used and diameters of wires used in fuses, the current that each type bears, and how to repair fuses
Week 10	Lab 10: The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors (VDR-PYC-NTC) how to check them. Make a circuit to connect the resistors in series, make a circuit to connect the resistors in parallel, make a circuit to connect the resistors in series and parallel, and check the circuit.
Week 11	Lab 11: Types of semiconductor diodes and transistors and finding the equivalents. Semiconductor check, diode check, transistor check
Week 12	Lab 12: How to read the electronic map and track faults on the electronic map. Introduce the student to how to design electronic circuits on the printed board.
Week 13	Lab 13: How to install and solder electronic components on the printed board. Implementation of a simple electronic circuit on the printed board.
Week 14	Lab 14: Integrated electronic circuits: identify the types of these circuits. Cautery for soldering integrated circuits, the correct method of soldering integrated circuits, and removing solder from circuits for the purpose of lifting and replacing.
Week 15	**Preparatory week for the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Recommended Texts	1- Encyclopedia of Electronic Components Volume 1 (Charles Platt). 2- Encyclopedia of Electronic Components Volume 2 (Charles Platt). 3- Encyclopedia of Electronic Components Volume 3 (Charles Platt). 4- Encyclopedia of Electronic Components Volume 4 (Charles Platt). 5- Encyclopedia of Electronic Components Volume 5 (Charles Platt).	NO
Websites	https://www.electricaltechnology.org/2013/03/how-to-remember-direction-of-pnp-and.html	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Fundamentals of Electrical Engineering (AC)**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU024021**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	MIET		**College**	EETC	
Module Leader	Mr. Jabar Qasim		**e-mail**		
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	MSc.	
Module Tutor	Mr. Jabar Qasim		e-mail		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/03/2025		**Version Number**	١.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Fundamentals of Electrical Engineering (DC)	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand capacitance, inductance and resistance from an AC circuit. 3. To learn the basic concept of First-Order electrical circuits. 4. To explain the parallel and series circuits. 5. To understand Sinusoids and Phasors problems. 6. To perform AC- network theorem. 7. To perform AC Power Analysis. 8. To understand 3-phase system.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Describe electrical capacitance, inductance and resistance. 5. Define First-Order electrical circuits' voltage, resistance, and current. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of sinusoids and phasors in an electric circuit. 8. Discuss the various properties of resistors, capacitors, and inductors. 9. Explain the parallel and series circuits. 10. Identify the capacitor and inductor phasor relationship with respect to voltage and current. 11. Learn the 3-Phase system, Wye connection and Delta connection. 12. Identify the power in balance phase circuit. 13. Describe the Magnetism and Magnetic Circuits
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. AC circuits I – Generation of alternating current, Sinusoidal current. The mean values of current and voltage. [15 hrs] AC Circuits II - The effective values of current and voltage. The vector diagram, [10 hrs] The instantaneous power and mean power of A.C , relative and apparent power . . [10 hrs] Revision problem classes [8 hrs] 3-Phase system, Wye connection, and Delta connection [10 hrs] The power in balance phase circuit. [7 hrs] Revision problem classes [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**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**	2	8% (10)	5, 10	LO #1-4, 6- 9
	Project	1	10% (10)	12	LO # 1-11
	OnSite assignment	2	6% (6)	4, 11	LO # 4, 11
	Report and presentation	1	6% (6)	13	LO # 6, 8, 10
	Lab	5	10% (10)	3, 6, 9, 12, 15	LO # 1-2, 4-5, 7-8, 10-11, 13-14
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Generation of alternating current, Sinusoidal current
Week 2	Average and RMS values of current & voltage
Week 3	AC in resistive circuits Current & voltage in an inductive circuit
Weeks 4-6	Current and voltage in an capacitive circuits AC series and parallel circuit RL, RC and RLC circuit analysis & phasor representation
Week 7	Mid-term exam
Weeks 8-11	Power in resistive circuits Power in inductive and capacitive circuits Power in circuit with resistance and reactance Measurement of power in a single-phase AC circuit
Week 12-15	Basic concept & advantage of Three-phase circuit Phasor representation of star & delta connection Measurements of power & power factor in 3-phase system Preparation for final exam
Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to electrical elements, sources, and measuring devices related to electrical circuits.
Week 2 + week3	Generating AC Voltages and Measurement Frequency, Period, Amplitude, and Peak Value.
Week 4	Calculations and Verification of the Impedance of RL series circuits
Weeks 5	Calculations and Verification of the current of RL series circuits
Week 6	Calculations and Verification of Impedance RC series circuits + Calculations and Verification of Current RC series circuits
Weeks 7	Mid-term exam
Week 8	Calculations and verification of the impedance of RLC series circuits
Week 9	Calculations and verification of the current of RLC series circuits

Week 10	Calculations of Power in AC Circuits
Week 11	Calculations and verification of the impedance of RL and RC parallel circuits
Week 12	Calculations and verification of the current of RL and RC parallel circuits
Week 13	Calculations and verification of the impedance RLC parallel circuits
Week 14	Calculations and verification of the impedance current RLC parallel circuits
Week 15	Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	Electric Circuits Seventh Editionو Schaum's Outline Series	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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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		**Module Delivery**
Module Type	B		☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	UOMU000001		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	**Semester of Delivery**	2
Administering Department	MIET	**College**	CETE
Module Leader	Dr. Saady Ali	**e-mail**	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Saady Ali	**e-mail**	
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/03/2025	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. تعميق معرفة الطالب بقواعد اللغة والإملاء التي تعلمها سابقا؛ ليتحاشى الوقوع في الأخطاء اللغويّة والاملائية، وليسهل عليه كتابة التقارير وجميع الأعمال الكتابية بصورة صحيحة نحوياً ولغوياً. 2. توسيع نطاق الوعي اللغويّ والأدبيّ ليشمل جميع الطلبة والمجتمع المحلي من خلال المحاضرات والندوات والدورات التدريبية المختلفة، والأخذ بيد المبدعين م ن أصحاب المواهب.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	المعرفة والفهم التطبيق من خلال إلقاء المحاضرات النظرية الصفية وحث الطلبة على قراءة كتاب معين في المادة، إضافة إلى تكليف الطلبة بواجبات بحثيّة، أو تقارير مكتب يّة وذلك في مستوى السنة الأولى من الدراسة.
Indicative Contents المحتويات الإرشادية	يتكون المقرر من جزء واحد يتناول تعليم الطلبة القواعد العامة للكتابة باللغة العربية بما يضمن عدم الإخلال بأساسيات هذه اللغة.

Learning and Teaching Strategies اس تاتيجيات التعلم والتعليم ر	
Strategies	استراتيجيات التعلم: التعلم الذاتي – التعلم النشط – التعلم التعاوني. استراتيجيات التعليم: عرض المادة–طرح الأسئلة–اختبارات صفيّة–واجب بيتي.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL الحمل الدراسي المنتظم للطالب خلال الفصل(h/sem)	30	Structured SWL الحمل الدراسي المنتظم للطالب أسبوعيا(h/w)	2
Unstructured SWL الحمل الدراسي غير المنتظم للطالب خلال الفصل(h/sem)	30	Unstructured SWL الحمل الدراسي غير المنتظم للطالب أسبوعيا(h/w)	2
Total SWL الحمل الدراسي الكلي للطالب خلال الفصل(h/sem)	60		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
	Quizzes	2	20% (20)	1,2,3,4	

Formative assessment	Assignments	2	10% (10)	5,11	تطبيق ما تعلمه الطالب من قواعد في الأعمال الكتابية وتنمية المعرفة اللغويّة لديه من خلال تمكين مهارات الإملاء، واستخدام الكلمة المناسبة في موضعها المناسب.
	Project / Lab.				
	Report				
Summative assessment	Midterm Exam	2 hr	20% (20)	7	
	Final Exam	3 hr	50% (50)	15	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	-مفهوم الأخطاء اللغوية -قواعد كتابة التاء المربوطة والتاء المفتوحة
Week 2	-الألف الممدودة والمقصورة -الحروف الشمسية والقمرية
Week 3	الضاد والظاء
Week 4	كتابة الهمزة: -همزة الوصل والقطع -الهمزة المتوسطة -الهمزة المتطرفة
Week 5	علامات الترقيم
Week 6	الاسم والفعل والتفريق بينهما
Week 7	المفاعيل: -المفعول به -المفعول المطلق -المفعول لأجله -المفعول فيه -المفعول معه
Week 8	العدد
Week 9	تطبيقات الاخطاء اللغوية والشائعة
Week 10	تطبيقات الاخطاء اللغوية والشائعة
Week 11	-معاني حروف الجر -قاعدة الألف الفارقة -قاعدة النون والتنوين
Week 12	الجوانب الشكلية للخطاب الإداري
Week 13	لغة الخطاب الإداري
Week 14	لغة الخطاب الإداري
Week 15	إمتحان

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**

Required Texts	١- كتاب الاملاء الفريد: نعوم جرجيس زرازير، نقحه: د. مصطفى جواد – مطابع النعمان النجف الاشرف – ط 6–1973م. ٢- كتاب الاملاء للمرحلة المتوسطة: عبد الجبار عبد الله الآلوسي واخرون – وزارة التربية المديرية العامة للمناهج – ط 18– 2014م.	نعم
	٣- دروس في اللغة والنحو والاملاء لموظفي الدولة: إسماعيل حمود عطوان واخرون – مطبعة وزارة التربية)3(بغداد – ط2 –1984م. ٤- اللغة العربية العامة لأقسام غير الاختصاص: عبد القادر حسن امين واخرون – وزارة التعليم العالي والبحث العلمي – ط2 – 2000م.	
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	Integral Mathematics			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024024				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	١		**Semester of Delivery**	2	
Administering Department	MITE		**College**	CETE	
Module Leader	Mr. Mohammad Hussain		**e-mail**		
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	MSc.	
Module Tutor	Mr. Mohammad Hussain		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/03/2025		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Differential Mathematics	**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. To develop problem solving skills and understanding of Integral calculus through a broad range of Integration techniques.

	2. To understand theory and methods of integrations and apply it on various types of functions. 3. This is the basic subject for all engineering fields 4. Demonstrate basic knowledge and understanding of a core of linear algebra and applied mathematics. 5. Introduce student to integration of trigonometric functions and their inverses.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. learn the basic ideas, tools and techniques of integration and will use them to solve problems from real-life applications. 2. Understand the definite and indefinite integrals and their applications in life. 3. Learn approximation techniques for integration. 4. Recognize how to apply integration methods to find area and volumes 5. Learn how to find the length of a plane curve for a given function. 6. Discuss Matrices, Inverse of matrix and solution of homogeneous matrices. 7. List the various applications of Eigenvalues, Eigenvectors and Matrix diagonalization in Signals and systems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Theory of Integration,Basics of Definite and indefinite Integration, Integration of trigonometric and inverse functions, Integration of the exponential functions, and Integration of logarithmic functions. [21 hrs] Integration of Hyperbolic and inverse hyperbolic functions, methods of integration, numerical integration, applications of the definite integrals, and area of surface. [15 hrs] Volume of revolution, length of plane curve, and matrices with their Inverses. [15 hrs] Matrix Diagonalization, solution of homogeneous matrices, eigenvalues, and eigenvectors. [15 hrs] Revision problem classes [6 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical

	thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	73	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – Theory of Integration.
Week 2	Methods of integration and Basics of Definite and indefinite Integration.
Week 3	Integration of trigonometric and inverse functions.
Week 4	Integration of the exponential functions.
Week 5	Integration of logarithmic functions.
Week 6	Integration of Hyperbolic and inverse hyperbolic functions.
Week 7	Mid-term Exam + numerical integration and applications of the definite integrals.
Week 8	Area of surface.

Week 9	Volume of revolution.
Week 10	Length of plane curve.
Week 11	Matrices and Inverse of matrix.
Week 12	Matrix Diagonalization
Week 13	Solution of homogeneous systems
Week 14	Eigenvalues.
Week 15	Eigenvectors
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Notes on Calculus II Integral Calculus Miguel A. Lerma	No
Recommended Texts	Thomas ' Calculus (pdf) Fouteenth edition Based on the original work by GEORGE B. THOMAS, JR.	No
Websites	https://sites.math.northwestern.edu/~mlerma/courses/math214-2-02f/notes/c2-all.pdf http://dl.konkur.in/post/Book/Paye/Thomas-Calculus-14th-Edition-%5Bkonkur.in%5D.pdf	

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mechanics			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☐**Lecture** **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024023				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	2	
Administering Department	MIET		**College**	CETE	
Module Leader	Dr. Saad Sami		**e-mail**		
Module Leader's Acad. Title	Prof. Dr.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr. Saad Sami		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/03/2025		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To understanding of mechanics theory through the application of motion. 2. To determine the forces, stress and strain under force effected. 3. To determine the reaction forces under load applied. 4. To understand the friction basic under mechanic applied 5. To understand a newton laws in motion. 6. To understand and solve problems in forces analysis. 7. To determine the materials properties and selective of materials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the basic of forces result in applications of structures. 2. Identify the basic of Equilibrium force system. 3. Recognize how phenomena motion in mechanics subject. 4. Summarize what is mean of forces reaction in beams. 5. Explain the analysis force in mechanics application. 6. Identify the basic of stress and strain in mechanics applications. 7. List the various parameters associated with mechanics theory. 8. Identify the basic of forces analysis and their applications. 9. Explain the Newton's laws used in mechanics application. 10. Identify the basic of friction forces in motion. 11. Identify the basic of welding and riveted joint in mechanics applications. 12. Explain the mechanical test to determine the mechanic properties. 13. Discuss the phenomena of moment of forces under different force moment.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A :</u> 1- Introduction of forces, Analysis of Forces, Result of forces, Moment of forces, Equilibrium force system. [18 hrs] 2- Stress, Strain, stress – strain curve, Simple strain, Variable stress. [18 hrs]

	3- Beams and bending, Analysis of structure. [15 hrs] 4- Friction, coefficient of friction, mechanism of friction. [18hrs] Part B: 1- Materials properties, material selective, stress- strain diagram. [18 hrs] 2- Mechanical tensile test, compression test, impact test, hardness test.[18 hrs] 3- Mechanical joint, Rivet joint, welding connection. [15 hrs] 4- Beams and bending, Analysis of structure, Centroid, Second moment of area. [18 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Strategies in mechanical subject like: The main strategy that will be adopted in delivering this module is to encourage students' to participation in the exercises, while at the same time refining and expanding their mechanical subject thinking development skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	105	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction of forces
Week 2	Result of forces
Week 3	Moment of forces
Week 4	Equilibrium force system
Week 5	Stress, Strain
Week 6	Simple strain
Week 7	Variable stress
Week 8	Friction
Week 9	Materials properties
Week 10	Rivet and weld connection
Week 11	Beams and bending
Week 12	Analysis of structure
Week 13	Centroid
Week 14	Second moment of area
Week 15	General Problems
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Engineering Mechanic's Statics, 12th Edition by R. C. Nibbler, 1995.	Yes
Recommended Texts	2- Engineering Mechanic's Statics, 7th Edition by James, L. Meriam, L. G Kraige, 1995.	No
Websites		

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Fundamentals of Electrical Engineering (DC)			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024011				
ECTS Credits	7				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MIET		**College**	CETE	
Module Leader	Ms. Sally Faiz		**e-mail**		
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	MSc	
Module Tutor	Ms. Sally Faiz		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop knowledge on standard units of electricity and understanding of DC circuit theorems. 2. To understand voltage, current and power of DC circuits. 3. To learn the basic concept of DC electrical circuits connections. 4. To explain the DC electrical circuits. 5. To understand basic laws of electricity. 6. To perform DC-network theorem. 7. To perform DC-circuit analysis methods. 8. To understand independent sources and dependent sources.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Describe electrical power, voltage, and current. 5. Define Ohm's law and define the relation between voltage, resistance, and current. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of power and energy in electric circuit. 8. Discuss the various properties of resistors connections. 9. Explain the two Kirchhoff's laws used in circuit analysis. 10. Identify the implementation of resistor circuit's connection. 11. Learn measurements of voltage ad current. 12. Practical Identification of resistance based on color code.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. DC circuits – Current and voltage definitions, and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law, Network reduction, Introduction to mesh and nodal analysis. [20 hrs] Conversion of delta – connected resistance into an equivalent Wye connection & Vic versa. [10 hrs] Fundamentals of the Power sources connected in parallel, Thevenin and Norton equivalent circuits, current and voltage division, Loop current method, Super position method ,maximum power transfer, Non- linear direct current circuit [20 hrs] Independent sources and dependent sources [10 hrs] source transformation [5 hrs] Revision problem classes [5 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**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**	2	10% (10)	5, 10	LO #1, 2, LO# 10 and 11
	Online Assignments	2	10% (10)	2, 12	LO # 3, 4, LO# 6, 7
	Projects	1	6% (6)	Continuous	LO# 1-12
	lab	10	10% (10)	Continuous	LO# 1-12
	Report	1	4% (4)	13	LO # 5, 8, 9, 12
Summative assessment	**Midterm Exam**	3 hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Symbols and abbreviations, Units, Electric circuits, and its elements.
Week 2	The direct–current network (Ohm's law, Kirchhoff's voltage and current laws & their use in network).
Week 3	Series elements and Voltage Division.
Week 4	Parallel elements and Current Division.
Week 5	Power sources are connected in parallel.
Week 6 **Week 7**	Circuit analysis methods: 1- Node voltage method. 2- Loop current method.
Week 8	Mid-term exam.
Week 9	Conversion of delta–connected resistance into an equivalent Wye connection & Vic versa
Week 10-13	Circuit analysis Theorems: 1. Superposition 2. Thevenin 3. Norton 4. Maximum power
Week 14-15	Independent sources and Dependent sources, source transformation and preparation for final exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to electrical elements, sources, and measuring devices related to electrical circuits.
Week 2	Resistance measurement based on AVO meter readings and color code identification.
Week 3	Verification of Ohm's Law
Weeks 4-5	Verification of KVL and KCL
Weeks 6-7	Verification of Thevenin's and Norton's theorems
Weeks 8-9	Verification of the superposition theorem
Week 10	Verification of the maximum power transfer theorem
Week 11	Verification of the Nodal Voltage Theorem
Week 12	Verification of the Mesh Theorem
Weeks 13-14	Practical implementation of Independent sources and Dependent sources
Week 15	Preparation for Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	Electric Circuits Seventh Edition, Schaum's Outline Series	No
Websites	https://www.youtube.com/watch?v=SfKw8bHk7-o (for practical implementation of Independent sources and Dependent sources, **Weeks 13-14**)	

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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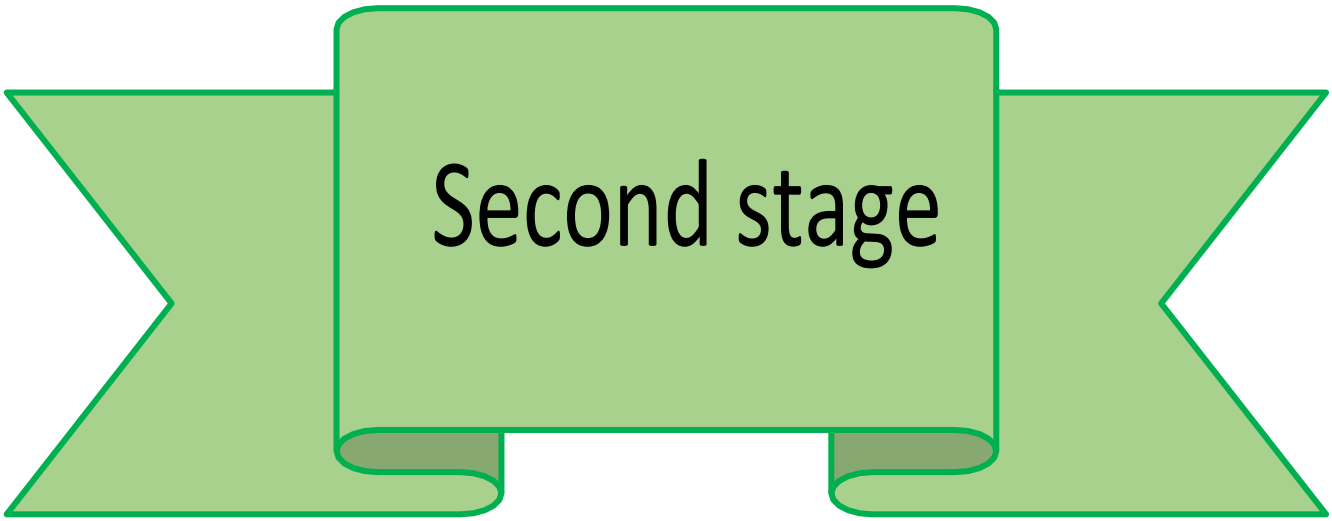
Second stage

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**The crimes of the Ba'ath regime in Iraq**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU000007**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		2	**Semester of Delivery**		3
Administering Department		MIET	**College**	EETC	
Module Leader	Nerran Mohammad		**e-mail**		
Module Leader's Acad. Title		Lecture	**Module Leader's Qualification**		MSC
Module Tutor	Nerran Mohammad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		19/11/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	يهدف هذا المقرر الدراسي إلى تعزيز فهم الطلاب للجرائم والانتهاكات التي وقعت خلال فترة نظام البعث في العراق وتأثيرها على الأفراد والمجتمع، وتشجيع التحليل والنقاش حول هذه القضايا المهمة. ومن ابرز الأهداف للمادة الدراسية هي اني يكون الطالب قادراً على أن : 1. فهم مفهوم الجرائم وأقسامها. 2. دراسة جرائم نظام البعث والقوانين المتعلقة بها. 3. التعرف على الجرائم النفسية والاجتماعية وآثارها على الفرد والمجتمع. 4. تحليل الانتهاكات القانونية في العراق، بما في ذلك الانتهاكات لحقوق الإنسان والجرائم ذات الصلة. 5. فهم الجرائم البيئية وآثارها، بما في ذلك التلوث وتدمير المدن والقرى وتجفيف الأهوار. 6. دراسة جرائم المقابر الجماعية وفهم أحداث المقابر والتصنيف الزمني لها في العراق.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	مخرجات التعلم للمادة الدراسية هي: 1. فهم مفهوم الجرائم وقدرة الطلاب على تصنيف الجرائم وفقًا لأقسامها. 2. تحليل جرائم نظام البعث وفهم القوانين المتعلقة بها، بما في ذلك الجرائم الدولية. 3. القدرة على التعرف على الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع. 4. القدرة على التعرف على الجرائم الاجتماعية لنظام البعث الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع. 5. التعرف على الانتهاكات القانونية لنظام البعث في العراق وفهم أنواع الانتهاكات ومكان احتجاز الأفراد. 6. التعرف على صور انتهاكات حقوق الإنسان وجرائم السلطة التي وقعت خلال فترة نظام البعث 7. التعرف على الانتهاكات السياسية والعسكرية لنظام البعث 8. فهم الجرائم البيئية لنظام البعث والقدرة على تحليل تأثيرها على البيئة والمجتمع. 9. دراسة جرائم المقابر الجماعية لنظام البعث 10. فهم الأحداث المرتبطة بجرائم المقابر الجماعية وتصنيفها زمنيًا.
Indicative Contents المحتويات الإرشادية	المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة: 1. تعريف الجريمة لغة واصطلاحًا، مفهوم الجريمة، اقسام الجريمة 2. جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005 3. الجرائم النفسية والاجتماعية وأثارها 4. عسكرة المجتمع، موقف النظام البعثي من الدين 5. انتهاكات القوانين العراقية، صور انتهاكات حقوق الإنسان وجرائم السلطة 6. بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث 7. أماكن السجون والاحتجاز لنظام البعث 8. الجرائم البيئية لنظام البعث في العراق 9. جرائم المقابر الجماعية 10. أحداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق 11. التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة 1963م - 2003م

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	استراتيجيات التعلم والتعليم المستخدمة في مادة جرائم حزب البعث البائد تشمل مجموعة متنوعة من النهج والتقنيات التي تعزز عملية التعلم للطلاب. من بين هذه الاستراتيجيات: 1. التفاعل النشط: يتم تشجيع الطلاب على المشاركة والمشاركة الفعالة في الدروس من خلال المناقشات الجماعية والأنشطة التفاعلية. 2. التعلم التعاوني: يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي والمشاريع الجماعية، حيث يتعاون الطلاب مع بعضهم البعض لتحقيق أهداف التعلم المحددة. 3. استخدام التقنيات الحديثة: يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب والإنترنت للبحث والتعلم الذاتي. 4. توفير ردود فعل فورية: يتم توفير ردود فعل فورية وتقييم مستمر للطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم على تحسين أدائهم وتطوير مهاراتهم. 5. التنويع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والأنشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

الأسبوع الأول	تعريف الجريمة لغة واصطلاحًا، مفهوم الجريمة، اقسام الجريمة	
الأسبوع الثـــاني	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005	
الاسبوع الثـــالث	الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع.	
الأسبوع الـــرابـع	الجرائم الاجتماعية لنظام البعث وفهم الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع.	
الأسبوع الخـــامس	انتهاكات القوانين العراقية	
الأسبوع الســـادس	بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث	
الأسبوع الســـابع	امتحان نصف الفصل	
الأسبوع الثـــامن	الجرائم البيئية لنظام البعث في العراق (التلوث الحربي وسياسة الأرض المحروقة)	
الأسبوع التاسع والعاشر	تجفيف الاهوار و تجريف بساتين النخيل والأشجار والمزروعات	

الاسبوع الحادي عشر و الاسبوع الثاني عشر	جرائم المقابر الجماعة واحداث مقابر الإبادة الجماعية المرتكبة من النظام البعث في العراق	
الأسبوع الثالث عشر والرابـــع عشرو الخامس عشر	التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة من (1963-2003) م	
الأسبوع السادس عشر	التهيئة للامتحان النهائي	

Module Evaluation

تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	% (10)	5,9	LO #1,2,3, LO # 6,7
	Assignments	2	% (10)	6,13	LO # 4 and LO# 9
	Seminar	1	% (10)	12	LO# 5,6,7,8
	Report	1	% (10)	14	LO # 8,9,10
Summative assessment	Midterm Exam	2 hours	10% (10)	7	LO # 1-7
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	منهاج وزارة التعليم العالي والبحث العلمي العراقية - جرائم نظام البعث في العراق 2023	Yes
Recommended Texts		No
Websites	The Collage E-Library	

Grading Scheme

مخطط الدرجات

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

Group (50 - 100)	**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	Engineering Mathematics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024034				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIET		**College**	EETC	
Module Leader	Maher Faik		**e-mail**		
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	PhD.	
Module Tutor	Maher Faik		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Integral Mathematics-MIET1204	**Semester**	UGI-S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. The goal of this module is to give students the necessary mathematical skills and tools to solve a range of design engineering issues. 2. Demonstrate basic knowledge and understanding of a core of vector analysis, linear algebra and applied mathematics. 3. Introduce student to Infinite and power series. 4. Understand how to solve Differential equations of the 1st and nth order. 5. Introduce student to Integral Transforms: Fourier series and Laplace transform and their applications in signal and systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define a vector, represent a vector by a directed straight line, add vectors, write a vector in terms of component vectors, write a vector in terms of component unit vectors, set up a coordinate system for representing vectors, and obtain the direction of a vector. 2. Explain the concept of a vector field and make sketches of simple vector fields in the plane 3. Memorize algebraic definitions and explain geometric meanings of dot and cross products 4. Compute dot and cross products given either algebraic or geometric information. 5. Apply dot or cross product to determine angles between vectors, scalar and vector projections, and volumes of parallelipipeds. 6. Memorize change of coordinate formulae between rectangular and cylindrical coordinate systems. 7. Memorize change of coordinate formulae between rectangular and spherical coordinate systems. 8. Identify coordinate surfaces in cylindrical and spherical coordinate systems as well as Converting equations between rectangular, cylindrical and spherical coordinate systems. 9. know what is meant by infinite series & its convergence, 10. Learn formation of Differential Equations - solutions of first order Differential Equations: Homogeneous-Non-homogeneous - Exact – Non-exact and solutions of nth order Differential Equations as well. 11. Definition of Laplace and Fourier transforms, Condition for existence, Laplace

	transform of standard functions, Properties of Laplace transform, 12. Application of Laplace and Fourier transforms to ordinary differential equations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Vector analysis,Vector fields,Orthogonal vectors and Dot Product, Parallel vectors and Cross Product, in addition to Partial Derivatives: Formulas for Del operation. [25 hrs] Polar Coordinates,Cylindrical Coordinates Systems, Spherical Coordinates Systems, and Infinite series.Power series. [23 hrs] Convergence and divergence series, Differential equation of the first order, Differential equation of *nth* order.Integral Transforms: Fourier series and Laplace transform.[25 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (10)	4 and 10	LO #1- #4 and #5 - #9
	Online assignments	2	5% (10)	3 and 6	LO #1- #4 and #5 - #8
	Report	1	10% (10)	14	LO #1- #6 and #7 - #12
	OnSite assignment	2	5% (10)	5 and 14	LO #1- #5 and #6- #12
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #8
	Final Exam	3hr	50% (50)	16	LO #1- #12
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Vector analysis.
Week 2	Vector fields.
Week 3	Orthogonal vectors and Dot Product.
Week 4	Parallel vectors and Cross Product.
Week 5	Partial Derivatives: Formulas for Del operation.
Week 6	Polar Coordinates.
Week 7	**Mid-term Exam** + Cylindrical Coordinates Systems.
Week 8	Spherical Coordinates Systems.
Week 9	Infinite series.
Week 10	Power series.
Week 11	Convergence and divergence series.
Week 12	Differential equations.
Week 13	Differential equation of the first order.
Week 14	Differential equation of *nth* order.
Week 15	Integral Transforms: Fourier series and Laplace transform.
Week 16	**Preparatory week before the final Exam.**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html (**pdf**)	No
Recommended Texts	https://www.bau.edu.jo/UserPortal/UserProfile/PostsAttach/59003_3812_1.pdf	No
Websites	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Laboratory Medical Instrumentation I			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	UOMU024031				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIET		**College**	EETC	
Module Leader	Ameer Jawad		**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MSC.	
Module Tutor	Ameer Jawad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills to diagnose the medical instruments faults. 2. The graduated students will gain the ability of knowledge of different parts of medical instruments. 3. Development and training the engineering technical staff on medical device maintenance. 4. Preparation of the research and studies to improve and develop the action of medical devices. 5. Prepare application engineers in technical and electronic engineering. 6. Put the proposals and alternatives for the medical devices.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Define the Medical instrumentation and recognize what is the laboratory security system and determine the quality control results in the medical laboratory. 2. Classify the medical instrumentation. 3. Describe the hospital design. 4. Design and Describe the operating room. 5. Understand patient safety laws and rules. 6. Define and understand the medical Laboratory Instruments and Tools. 7. Calibration of Medical Laboratory Instruments. 8. Define, explain, and describe Balances and understand the electrical and electronic parts. 9. Explain the types of balances and their medical application. 10. Define, explain, and describe water bath and understand the electrical and electronic parts. 11. Define, explain, and describe wax bath and understand the electrical and electronic parts.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Medical instrumentation classification, analysis lists, work security rules, and best laboratory use guidelines [14 hr]. Calibration of instruments criteria, types, components, advantages and disadvantages, physical and medical applications. [14hr] Medical instrumentation faults and maintenance, analysis lists, work security rules, and best laboratory use guidelines [14hr]. Patient safety and hospital design rules [15h]. Classification of different types of medical laboratories like medical, biological histological and chemical [13hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the design, while at the same time refining and expanding their medical instrumentations thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	% (10)	3,10	LO # 1,2,3…..14 ,
	Assignments	2	% (10)	4,8	LO # 6,13
	Projects / Lab.	1	%(10)	6	LO #3
	Report	2	% (10)	5,9	LO # 7,12
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Definition to medical instruments.
Week 2	Introduction to medical instruments.
Week 3	Classification of medical instrumentation.
Week 4	Design of hospitals.
Week 5	Design of operating room.
Week 6	Patient Safety.
Week 7	Mid-term exam
Week 8	Medical Laboratory Instruments and Tools-1
Week 9	Medical Laboratory Instruments and Tools- 2
Week 10	Classification of different medical laboratories
Week 11	Calibration of Medical Laboratory Instruments.
Week 12	Introduction to Balance.
Week 13	Balance and their types.
Week 14	Wax bath. Water bath.
Week 15	The preparatory week before the final exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to medical instruments.
Week 2	Classification of medical instrumentation.
Week 3	Medical Laboratory Instruments and Tools.
Week 4	Patient Safety.
Week 5	Calibration of Medical Laboratory Instruments.
Week 6	Classification of different medical lab.

Week 7	Introduction to Balance.
Week 8	Balance and their types.
Week 9	Wax bath.
Week 10	Water bath.
Week 11	Exam.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Biomedical device technology ,by ANTHONY Y. K. CHAN, MSc, MEng, PEng, CCE	
Recommended Texts	Ananthi ,2005,"A text book of medical instruments	
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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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.

Electronic Circuits I

Module Information معلومات المادة الدراسية					
Module Title	**Electronic Circuits I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOMU024032**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIET		**College**	EETC	
Module Leader	Maher Faik		**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PHD.	
Module Tutor	Maher Faik		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Fundamentals of Electrical Engineering (AC) MIET1201	**Semester**	UGI_S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The graduate gets scientific and applied skills of electronic circuits. 2. The graduated students will gain the ability of knowledge of different parts of electronic circuits. 3. Development and training the engineering technical staffs on the electronic circuits. 4. Preparation the research and studies to improve and develop the action of electronic circuits. 5. Prepare application engineers in technical and electronic engineering. 6. Put the proposals and alternatives for the electronic devices.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Become aware of the general characteristics of electronic devices. 2. Be able to describe the difference types of electronic categories. 3. Develop a clear understanding of the basic operation and characteristics of electronic devices. 4. Become familiar with the use of equivalent circuits to analyze series, parallel, and series-parallel electronic networks. 5. Be able to predict the output response of an electronic networks. 6. Become familiar with the analysis of and the range of applications for electronic devices. 7. Become familiar with the basic construction and operation of the various types of electronic categories. 8. Be able to test a various type of electronic terminals. 9. Be able to determine the dc levels for the variety of important electronic circuits. 10. Understand how to measure the important voltage levels of electronic circuits. 11. Begin to understand the troubleshooting process as applied to electronic configurations. 12. Develop a sense for the stability factors of an electronic circuits. 13. Learn to use the equivalent model to find the important ac parameters for an amplifier. 14. Develop some skill in troubleshooting ac amplifier networks.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A Electronic Theory</u> Semiconductor Materials: Ge, Si, and GaAs 2, Covalent Bonding and Intrinsic Materials, n -Type and p -Type Materials , Semiconductor Diode , Transistor Construction ,Transistor Operation , Construction and Characteristics of JFETs ,Transfer Characteristics, Important Relationships ,Depletion-Type MOSFET Enhancement-Type MOSFET [10 hrs]

	Diode Applications -Load-Line Analysis, Series Diode Configurations, Parallel and Series–Parallel Configurations, Sinusoidal Inputs; Half-Wave Rectification Full-Wave Rectification , Clippers , Clampers Networks with a dc and ac Source, Zener Diodes , Voltage-Multiplier Circuits [12 hrs] Revision problem classes [6 hrs] <u>Part B - DC Electronic Circuits</u> BJT Transistor - Operating Point, dc bias configurations of a BJT transistor, Miscellaneous Bias Configurations of a BJT transistor 4.11 Design Operations of a BJT transistor, Multiple BJT Networks, Current Mirrors. [13 hrs] FET Transistor - biasing arrangements for the n and p channel JFET, 7.7 Depletion-Type MOSFETs, Enhancement-Type MOSFETs, Combination Networks, Universal JFET Bias, Practical Applications. [10 hrs] <u>Part C - AC Electronic Circuits</u> BJT Transistor - Amplification in the AC Domain, BJT Transistor Modeling, the r_e Transistor Model, Effect of RL and Rs, Determining the Current Gain, Cascaded Systems, Darlington Connection, Feedback Pair, The Hybrid Equivalent Model. [17 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy will be encourage active participation and engagement of students through activities such as group discussions, hands-on experiments, problem-solving tasks, and case studies. This approach promotes critical thinking, collaboration, and knowledge application and encourages students to explore and discover knowledge through inquiry and investigation. Pose open-ended questions or problem scenarios that require learners to research, analyze, and draw conclusions independently.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	16% (16)	5,10	LO #1,2,10 and 11
	Assignments	2	8% (8)	2,12	LO # 3,4 ,6,7 and 14
	Projects / Lab.	1	8% (8)	continuous	
	Report	1	8% (8)	13	LO # 5,8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1,2,5,9,10 and 13
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction -
Week 2	Semiconductors materials
Week 3	Diode Configurations
Week 4	Diode Networks with a dc and ac Source
Week 5	Zener Diodes
Week 6	Bipolar junction transistor
Week 7	Mid-term Exam
Week 8	DC biasing BJTs
Week 9	Multiple BJT Networks
Week 10	Field effect transistor and MOSFET
Week 11	Depletion-Type MOSFET

Week 12	Enhancement type MOSFET
Week 13	BJT AC Analysis
Week 14	BJT Transistor Modeling and Effect of RL and Rs
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Diode characteristics
Week 2	Lab 2: Half – wave Rectifier
Week 3	Lab 3: full wave Rectifier
Week 4	Lab 4: Filter for Halve – wave and full wave Rectifiers
Week 5	Lab 5: Voltage Doubler
Week 6	Lab 6: Voltage Tripler
Week 7	Lab 7: Positive Series Clipper
Week 8	Lab 8: Negative Series Clipper
Week 9	Lab 9: positive parallel Clipper
Week 10	Lab 10: Negative parallel Clipper
Week 11	Lab 11: Clamper
Week 12	Lab12: Zener Diode
Week 13	Lab13: Fixed Vi , Variable RL Zener Diode
Week 14	Lab14: Fixed RL , Variable Vi Zener Diode

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Electronic devices and circuit theory 11th edition, Robert L. Boylestad , Louis Nashelsky	Yes
Recommended Texts		No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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 Application**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU000005				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1	2	**Semester of Delivery**		3
Administering Department		ENG - STE	**College**	EETC	
Module Leader	Sadek Mohammad		**e-mail**		
Module Leader's Acad. Title		Lecture	**Module Leader's Qualification**		MSC
Module Tutor	Sadek Mohammad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		19/11/2023	**Version Number**		2.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادي ة	
Module Aims أهداف المادة الدراسية	1. module aims to: Security and Networking: • Understand the basic concepts and components of computer networks. • Gain knowledge of network security principles and threats. 2. • Develop skills in network troubleshooting and problem-solving. E-Commerce: • Familiarize with the concepts and services of electronic banking. • Understand the different modes of online banking, such as ATM, debit cards, phone banking, SMS banking, and mobile banking. 3. Computer Troubleshooting: • Develop the ability to identify and solve common hardware and software issues faced by computer users. • Learn basic troubleshooting techniques and tools for diagnosing and resolving computer problems. 4. Introduction to AI: • Understand the definition and history of artificial intelligence. • Explore the various AI techniques and approaches. • Recognize the challenges and ethical considerations in AI.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Security and Networking: • Understand the basic concepts of computer networks and their components • Gain knowledge of network security principles and be able to identify network threats • Develop troubleshooting skills to diagnose and resolve network issues 2. E-Commerce: Comprehend the concepts and services of electronic banking, including online banking, ATM, debit cards, phone banking, SMS banking, and mobile banking 3. Computer Troubleshooting: • Ability to identify and solve common hardware and software problems encountered by computer users • Demonstrate proficiency in using basic troubleshooting techniques and tools 4. Introduction to AI: • Define and explain the concept of artificial intelligence • Understand the history and evolution of AI • Explore various AI techniques and approaches • Recognize the challenges and ethical considerations in AI development and deployment 5. AI in Our Daily Lives: Understand the applications of AI in smartphones and virtual assistants 6. Applications of AI: Identify and analyze the use of AI in various domains, such as education, healthcare, finance, transportation, marketing, and advertising 7. AI and Society: • Examine the social, international, and future implications of AI • Understand how AI affects human society and the future of humanity 8. Ethical Challenges in AI: Identify and discuss the ethical considerations in AI, including privacy, surveillance, and the impact on the job market 9. The Future of AI: Explore future trends and emerging technologies in the field of artificial intelligence.

Indicative **Contents**المحتويات الإرشادي ة	The indicative contents for the Computer Application module may include: 1. Security and Networking: [4 hrs.] • What is a network? • Types of networks. • Basic network components. • Network security basics. • Understanding network threats. • Network troubleshooting. 2. E-Commerce: [4 hrs.]

	• Concepts of electronic banking services. • Online banking. • ATM and debit card services. • Phone banking. • SMS banking. • Electronic alert. • Mobile banking. 3. Computer Troubleshooting: [4 hrs.] • Identifying and solving common hardware and software problems that computer users encounter. • Basic troubleshooting techniques and tools for diagnosing and resolving issues. 4. Introduction to AI: [4 hrs.] • Definition of AI. • History of AI. • AI techniques and approaches. • Challenges and ethical considerations in AI. 5. AI in Our Daily Lives: [4 hrs.] • AI in smartphones and virtual assistants like Siri or Google Assistant. 6. Applications of AI: [4 hrs.] • Education. • Healthcare. • Finance. • Transportation. • Marketing. • Advertising. 7. AI and Society: [4 hrs.] • How AI affects social, international relations. • AI and the future of humanity. 8. Ethical Challenges in AI: [4 hrs.] • AI ethics. • Privacy and surveillance. • The impact of AI on the job market. 9. The Future of AI: [4 hrs.] • Future trends in AI. • Recent research and emerging technologies.
Learning and Teaching Strategies استراتيجيات التعلم والتعلي م	

Strategies	The learning and teaching strategies employed in the applied mathematics module are designed to facilitate active engagement, critical thinking, and practical application of mathematical concepts. The following strategies are commonly used: 1. Lectures: Lectures serve as the primary mode of content delivery, where instructors present key concepts, theories, and techniques. Lectures may include visual aids, examples, and demonstrations to enhance understanding and provide real-world context. 2. Interactive Discussions: Interactive discussions encourage student participation and facilitate deeper understanding of the material. Students are encouraged to ask questions, share their insights, and engage in discussions on specific topics or problemsolving strategies. 3. Problem-solving Sessions: Problem-solving sessions allow students to apply mathematical principles to solve a variety of problems. These sessions may be conducted in groups or individually, allowing students to collaborate, exchange ideas, and develop problem-solving skills.
	4. Practical Exercises: Practical exercises involve hands-on application of mathematical concepts through computational tasks, modeling exercises, or simulations. These exercises reinforce theoretical knowledge and help students develop proficiency in using mathematical tools and software. 5. Case Studies and Real-world Applications: Case studies and real-world applications demonstrate the relevance of mathematics in various fields. Students analyze and solve mathematical problems based on real-life scenarios, enabling them to connect theoretical concepts with practical applications. 6. Computer-based Learning: Computer-based learning resources, such as online tutorials, interactive simulations, and mathematical software, are utilized to enhance students' understanding and proficiency in applying mathematical techniques. 7. Group Projects: Group projects promote teamwork, communication, and problemsolving skills. Students work collaboratively on mathematical projects or research assignments, allowing them to explore advanced topics or applications of mathematics. 8. Self-directed Learning: Students are encouraged to take responsibility for their learning by engaging in self-directed study. This may involve reading recommended textbooks, exploring additional resources, and practicing problem-solving independently. 9. Assessments: Regular assessments, including quizzes, tests, and assignments, evaluate students' understanding and application of mathematical concepts. These assessments provide feedback and help track progress throughout the module. 10. Tutorial Sessions: Tutorial sessions provide opportunities for students to seek clarification, discuss challenging topics, and receive individualized guidance from instructors or teaching assistants.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوع ا

Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدرا يس غري المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدرا يس غري المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراس الكل للطالب خلال الفصل	75		

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Module Evaluation

تقييم المادة الدراسي ة

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 8 and 9
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	14	LO # 1-14
Summative assessment	**Midterm Exam**	2 hours	10% (10)	7	LO # 1-7
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظر ي

	Material Covered
Week 1	**Security and Networking**: What is a network? Types of networks, basic network components, network security basics, network troubleshooting.
Week 2	**E-Commerce**: Concepts of electronic banking services, including online banking, ATM and debit card services, phone banking, SMS banking, electronic alert, and mobile banking.
Week 3-4	**Computer Troubleshooting**: Identifying and solving common hardware and software problems that computer users encounter, including basic troubleshooting techniques and tools.
Week 5-6	**Introduction to AI:** Definition of AI, history of AI, AI techniques and approaches, challenges and ethical considerations.
Week 7	Review and Mid Exam
Week 8-9	**AI in Our Daily Lives**: AI in smartphones and virtual assistants like Siri or Google Assistant.
Week 10-12	**Applications of AI**: Education, healthcare, finance, transportation, marketing, and advertising.
Week 13	**AI and Society**: How AI affects social, international relations, and the future of humanity.

Week 14	**Ethical Challenges in AI:** AI ethics, privacy, surveillance, and the impact of AI on the job market.
Week 15	**The Future of AI**: Future trends in AI, recent research, and emerging technologies.
Week 16	Preparatory week before the final Exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Introduction to Networking - Setting up a basic network using routers and switches - Identifying different types of networks (LAN, WAN, etc.) - Overview of network components (cables, connectors, etc.)
Week 2	Network Security Basics - Implementing basic security measures (firewalls, antivirus) - Conducting a risk assessment for a sample network - Exploring network security tools and software
Week 3	E-Commerce Services - Simulating online banking transactions - Setting up an ATM simulator - Exploring mobile banking applications
Week 4	Computer Troubleshooting Techniques - Hands-on troubleshooting of common hardware issues - Software troubleshooting exercises using diagnostic tools - Documenting troubleshooting procedures
Week 5	Introduction to AI - Exploring AI development environments (e.g., TensorFlow, PyTorch) - Basic programming exercises in AI (e.g., simple algorithms) - Discussion on the ethical considerations of AI
Week 6	AI in Daily Life - Analyzing the functionality of virtual assistants (Siri, Google Assistant) - Creating simple AI-based applications (chatbots, etc.) - Evaluating user interactions with AI technologies
Week 7	Applications of AI - Case studies on AI applications in healthcare and finance - Developing a simple AI model for a specific application (e.g., predictive analysis) - Group discussions on marketing and advertising with AI
Week 8	AI and Society - Research project on the societal impact of AI technologies - Group presentations on international relations affected by AI
	- Discussion on the future implications of AI
Week 9	Ethical Challenges in AI - Debating ethical scenarios related to AI applications - Analyzing case studies of AI ethics violations - Discussing privacy issues and surveillance implications
Week 10	The Future of AI - Researching recent advancements in AI technologies - Group projects on emerging technologies in AI

	- Presentations on future trends and predictions in AI
Week 11	Review and Mid Exam - Review of key concepts and practical skills learned - Mock exam scenarios and feedback sessions - Q&A sessions to clarify any doubts
Week 12-15	Preparatory Week for Final Exam - Comprehensive review of all topics covered in the course - Final project presentations - Discussion on exam strategies and key focus areas

Learning and Teaching Resources
مصادر التعلم والتدري س

	Text	Available in the Library?
Required Texts	Banafa A. Introduction to Artificial Intelligence (AI). CRC Press; 2024 May 13.	Yes
Recommended Texts		Yes
Websites	The Collage E-Library	

Grading Scheme مخطط الدرجا ت

Group	Grade	التقدي ر	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	جي د	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	Engineering Mathematics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOMU024033				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIET		**College**	EETC	
Module Leader	Mohammad Hussain		**e-mail**		
Module Leader's Acad. Title	Asst.Lecture		**Module Leader's Qualification**	MSc.	
Module Tutor	Mohammad Hussain		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Integral Mathematics-MIET1204	**Semester**	UGI-S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. The goal of this module is to give students the necessary mathematical skills and tools to solve a range of design engineering issues. 2. Demonstrate basic knowledge and understanding of a core of vector analysis, linear algebra and applied mathematics. 3. Introduce student to Infinite and power series. 4. Understand how to solve Differential equations of the 1st and nth order. 5. Introduce student to Integral Transforms: Fourier series and Laplace transform and their applications in signal and systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define a vector, represent a vector by a directed straight line, add vectors, write a vector in terms of component vectors, write a vector in terms of component unit vectors, set up a coordinate system for representing vectors, and obtain the direction of a vector. 2. Explain the concept of a vector field and make sketches of simple vector fields in the plane 3. Memorize algebraic definitions and explain geometric meanings of dot and cross products 4. Compute dot and cross products given either algebraic or geometric information. 5. Apply dot or cross product to determine angles between vectors, scalar and vector projections, and volumes of parallelipipeds. 6. Memorize change of coordinate formulae between rectangular and cylindrical coordinate systems. 7. Memorize change of coordinate formulae between rectangular and spherical coordinate systems. 8. Identify coordinate surfaces in cylindrical and spherical coordinate systems as well as Converting equations between rectangular, cylindrical and spherical coordinate systems. 9. know what is meant by infinite series & its convergence, 10. Learn formation of Differential Equations - solutions of first order Differential Equations: Homogeneous-Non-homogeneous - Exact – Non-exact and solutions of nth order Differential Equations as well. 11. Definition of Laplace and Fourier transforms, Condition for existence, Laplace

	transform of standard functions, Properties of Laplace transform, 12. Application of Laplace and Fourier transforms to ordinary differential equations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Vector analysis,Vector fields,Orthogonal vectors and Dot Product, Parallel vectors and Cross Product, in addition to Partial Derivatives: Formulas for Del operation. [25 hrs] Polar Coordinates,Cylindrical Coordinates Systems, Spherical Coordinates Systems, and Infinite series.Power series. [23 hrs] Convergence and divergence series, Differential equation of the first order, Differential equation of *nth* order.Integral Transforms: Fourier series and Laplace transform.[25 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (10)	4 and 10	LO #1- #4 and #5 - #9
	Online assignments	2	5% (10)	3 and 6	LO #1- #4 and #5 - #8
	Report	1	10% (10)	14	LO #1- #6 and #7 - #12
	OnSite assignment	2	5% (10)	5 and 14	LO #1- #5 and #6- #12
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #8
	Final Exam	3hr	50% (50)	16	LO #1- #12
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Vector analysis.
Week 2	Vector fields.
Week 3	Orthogonal vectors and Dot Product.
Week 4	Parallel vectors and Cross Product.
Week 5	Partial Derivatives: Formulas for Del operation.
Week 6	Polar Coordinates.
Week 7	**Mid-term Exam** + Cylindrical Coordinates Systems.
Week 8	Spherical Coordinates Systems.
Week 9	Infinite series.
Week 10	Power series.
Week 11	Convergence and divergence series.
Week 12	Differential equations.
Week 13	Differential equation of the first order.
Week 14	Differential equation of *nth* order.
Week 15	Integral Transforms: Fourier series and Laplace transform.
Week 16	**Preparatory week before the final Exam.**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html (**pdf**)	No
Recommended Texts	https://www.bau.edu.jo/UserPortal/UserProfile/PostsAttach/59003_3812_1.pdf	No
Websites	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Clinical Chemistry instrumentation			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024044				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	4	
Administering Department	MIET		College	EETC	
Module Leader	Noor Aldeen Reyadh		e-mail		
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	M.Sc	
Module Tutor	Noor Aldeen Reyadh		e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	19/1/2025		Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1.To introduce the clinical chemistry and biochemical mechanism in the human body 2.To describe the types of laboratory medical instruments. 3. To describe the types of clinical chemistry analysis or (tests). 4. To explain the principal work of the laboratory medical devices techniques. 5. To describe the most important compositions in human body. 6. To understanding the maintenance of laboratory medical devices and its electrical and mechanical faults.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1.Define the clinical chemistry and recognize what is the laboratory security system and determine the quality control results in medical laboratory. 2. List the principal work of spectrophotometer instruments and derive Beer's- Lambert Law. 3.Desribe the measurement instruments of ions and salts in human body. 4. Identify all the clinical chemistry analysis and their measurement techniques. 5. Discus the importance of minerals in human body and their measurement. 6. Describe the principal work of Elisa technique and list their methods. 7. Explain the electrical conduction concept and their examples in human body. 8. Explain the osmotic conduction concept and their examples in human body. 9. List the types and function of enzyme in human body and their measurements techniques. 10. Discus the importance of proteins in human body and describe their measurements. 11. Explain the importance of fats in human body and explain their measurement techniques. 12. Define the hemoglobin and explain the hemoglobin diseases with its clinical significant. 13. List all types of minerals in human body and describe their daily

	requirements. 14. Define the immune system and recognize the foreign material and explain the disorders of immune system.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Clinical chemistry definition, analysis lists, work security rules, best laboratory uses guidelines. [3hr]. Spectrophotometer instruments criteria, theory, types, components, advantage and disadvantage, physical and medical application and Beer-Lambert law derivative .[10hr] Electrolyte analyzer definition, features, theory, components, configuration advantages, disadvantages and application. [6hr] Autoanalyzer concept, Blood Gas Analyzer (BGA) criteria, types, theory, components, figuration, advantages and disadvantages. [6hr] ELISA Technique concept, theory ,methods:(direct and indirect), components ,figuration, advantages ,disadvantages and applications [6hr]. Minerals definition, classifications, sources, function, nutrition(mg/day) and diagnostic procedure[6hr]. Electrical conduction concept , examples ,performing tests. Osmotic conduction concept, examples ,performing tests [10hr]. Enzyme definition, classification, function, performing test and clinical significant. [6hr] Proteins definition, classification ,function, clinical significant, Electrophoresis Technique :diagnostic procedure, theory and principle work [6hr]. Fats concept, classification, sources, importance, clinical signification and measurements: Hydro densitometry Weighing (Underwater Weighing, Near –infrared interaction (NIR), Skin Fold Caliper, Dual energy X-ray absorptiometry (DEXA), BMI (Body mass impedance) [10hr] . Hemoglobin definition, structure, analysis, hemoglobin diseases, clinical significant and diagnostic procedure: complete blood count (CBC) [6hr]. Concept of immunology, structure, material and disease diagnostic [3hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures - scientific laboratory- data show - summer training- workshops- seminars, written exam, Quizzes and online testing .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10%	3, 11	LO:1,2,3.....14
	Assignments	2	10%	7,10	LO: 6, 13
	Projects / Lab.	2	10%	4,8	LO: 3, 10
	Report	1	10%	11	LO: 10,12
Summative assessment	**Midterm Exam**	2 hr	10%	7	LO: 1-7
	Final Exam	3 hr	50%	14	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction ,Best laboratory uses and quality control.
Week 2	Spectrum instruments and uses.
Week 3	Ion and salt measurement instruments
Week 4	Auto-analysis instruments
Week 5	Mineral measurement instrument
Week 6	Elisa instrument and its uses
Week 7	**Mid term Exam**
Week 8	Electrical conduction
Week 9	Osmotic conduction
Week 10	Enzyme and their measurement
Week 11	Protein and its importance
Week 12	Fats and its importance
Week 13	Hemoglobin
Week 14	Minerals and nutrition
Week 15	Immunological chemistry
Week 16	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Clinical Chemistry instrumentation
Week 2	Lab1: spectrophotometer and colorimeter, theory, principle of work, operation, component's function, maintenance and the faults.
Week 3	Lab2: Flame photometer, types, theory, principle of work, operation, component's function, maintenance and the faults.
Week 4	Lab3: Blood gas analyzer and PH meter, theory, principle of work, operation, components function, normal results, maintenance and the faults.

Week 5	Lab4: Auto-analysis, types, theory, principle of work, operation, component's function, maintenance and the faults.
Week 6	Lab5: Elisa, types, theory, principle of work, operation, components function, maintenance and the faults.
Week 7	Lab6: Hemodialysis and peritoneal technique, theory, principle of work, operation, maintenance and faults.
Week 8	Lab7: Electrophoresis, theory, principle of work, operation, component's function, normal results, maintenance and the faults.
Week 9	Lab 8: Body fat analyzer, theory, principle of work, operation, component's function, normal results, maintenance and the faults.
Week 10	Lab 9: review for the clinical chemistry instrumentation.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Clinical Chemistry Hand book :workbook of principles ,techniques and correlation by N.T.Coleman	yes
Recommended Texts	LABORATORY INSTRUMENTATION AND TECHNIQUES, Book by Dr.Mathew Folaranmi OLANIYAN,Associate Professor,Department of Medical Laboratory Science,Achievers University, Owo-Nigeria,2017.	No
Websites	1.https://byjus.com/chemistry/spectrophotometer-principle/ 2.3.https://www.bosterbio.com/media/pdf/ELISA_Handbook.pdf3.	

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	**Anatomy & Physiology**			**Module Delivery**	
Module Type	**Support or related learning activities**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** **Seminar**	
Module Code	**UOMU024035**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIET		**College**	EETC	
Module Leader	Dr. Wessam Mohammad		**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PHD	
Module Tutor	Dr. Wessam Mohammad		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/11/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1-Anatomy and Physiology are important medical discipline to understand structures and functions of human body cells, tissues, organs, organ systems, and as a whole system, how it works and the relationships between body parts. 2- This mode unit consists of main elements of anatomy and physiology, the terminology used, and how our body control itself. 3- Students will be able to understand how medical device work with the human body and what the benefit from it. 4- To understand the level of organization of the human organism and the homeostatic system. 5- To understand the chemical structure, chemical reactions and their control with acid-base balance in human body.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate correct usage of the terminology used to describe anatomical structures. 2. Describe the organization of cells and tissues. 3. Describe the principles relating to the structure of connective tissues, skeletal muscle, bones, and joints. 4. Describe the principles of excitable tissues. 5. Describe the structure and function of the human eye and ear and the mechanisms of vision and hearing. 6. Describe the principles of sensorimotor control. 7. Describe cardiac mechanics and cardiac biophysics. 8. Develop quantitative descriptions of physiological properties and systems. 9. Describe the application of technologies and techniques for investigating the structure and function of the body. 10. Demonstrate communication skills (oral and written) to describe the structure and function of the human body. 11. Describe basic structural and functional features of the major organ systems within the human body. 12. Define basic biological processes essential for maintenance of homeostasis. 13. Correlate specific structural features of human cells, tissues, organs and systems of the human body with their normal functions, and identify the changes that occur during human development, ageing and disease.
Indicative Contents	Topics include:

المحتويات الإرشادية	• Anatomical terminology (5 hrs). • The structure and appearance of cells and tissues (6 hrs). • The appearance of bone and cartilage, the organization of dense connective tissues (6 hrs). • Skeletal muscle structure and function. Principles of excitable tissues. [15 hr] • The structure and function of sensory systems, including the eye and vision and the ear and hearing. • Principles of sensory motor control. Cardiac mechanics and cardiac biophysics.[10 hr] • Multiscale modelling of physiological systems (6 hrs). • Technologies, quantitative measurements and experimental techniques used to investigate the structure and function of different tissues, organs and organ systems. [15 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies employed in this module can vary depending on the specific course. However, here are some common strategies that may be used with this course: **<u>Teaching methods include:</u>** • lectures • seminars • tutorials • lab experiments • design assignments. • industrial visits • professional training • a variety of projects **<u>Assessment :</u>** methods of assessment include a combination of: • coursework • group project reports • lab reports • written exams.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	20%	2,4,6, 8, 10, 12	LO : 1,2,3……..14
	Assignments	2	5%	7, 10	LO : 6, 13
	Projects / Lab.	2	5%	5, 9	LO : 1-5, 6-9
	Report	1	10%	11	LO : 1,2,3 ……12
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO : 1-7
	Final Exam	4 hr	50 % (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Anatomy and Physiology.
Week 2	The Chemical level of Organization.
Week 3	The Cell level of Organization
Week 4	The Tissue level of organization
Week 5	The Integumentary system
Week 6	The Muscular system
Week 7	Mid Exam
Week 8	The Skeletal System
Week 9	The Central Nervous System
Week 10	The Peripheral Nervous System and Autonomic Nervous System.

Week 11	The Sense and Sensory System.
Week 12	The Endocrine System.
Week 13	The Cardiovascular System: The Heart, Blood Vessels And Blood.
Week 14	The Respiratory System. The Urinary System.
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1 measurement of body temperature
Week 2	Lab 2 Coagulation
Week 3	Lab 3 The blood
Week 4	Lab 4 Membrane transport
Week 5	Lab 5 Complete blood count
Week 6	Lab 6 Hemoglobin (Hb) Determination
Week 7	Lab 7 Erythrocyte Sedimentation Rate ESR
Week 8	Lab 8 Total leucocyte count
Week 9	Lab 9 Total Red Blood Cell R B C count
Week 10	Lab 10 Platelets count
Week 11	Lab 11 Blood film
Week 12	Lab 12 Blood group
Week 13	Lab 13 Blood sugar
Week 14	Lab 14 Blood urea & Blood pressure

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Frederic H Martini, Edwin F Bartholomew, William C. Ober, Claire W. Garrison, Kathleen Welch, & Ralf T Hutchings (2007), *Essentials of Anatomy and Physiology*, 14th edn, Pearson Education, San Francesco, USA.	No
Recommended Texts	1- **Human Physiology Study Guide** 2- **Human Anatomy & Physiology: Help and Review**	
Websites	Interactive physiology, Copyright © 2005 Pearson Education, Inc. publishing as Benjamin	

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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	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	Arabic Language II			Module Delivery	
Module Type	B			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU0000012				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	2		Semester of Delivery	4	
Administering Department	MIET		College	EETC	
Module Leader	Odaa Khaneem		e-mail		
Module Leader's Acad. Title	Lecture		Module Leader's Qualification	PhD.	
Module Tutor	Odaa Khaneem		e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	19/1/2025		Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Arabic Language I	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**Module Aims** *هداف المادة الدراسية هي اني يكون الطالب قادراً على أن :* *1. يتعرف على ماهية التعبير القرآني.* *2. يتعلم القواعد النحوية المستعملة في التعبير القرآني، والأثر البلاغي والفني الذي يترتب على كيفية التعبير القرآني، وأن يفهم الطالب كيفية التحليل للنصوص القرآنية.* *3. يتعرف على شخصية من أهم شخصيات الأدب والشعر العربي والعراقي، بدر شاكر السياب ، ومعرفة شعره.* *4. يتعرف على علامات الإعراب الأصلية والفرعية ، ويتعلم استعملها في اللغة العربية ، ويفهم الفرق بين علامات الإعراب الفرعية والاصلية.* *5. يتعلم الفرق بين الجمل الأسمية والفعلية ، ويتعرف على أنواع المبتدأ، وأنواع الخبر، ويفهم الفرق بينهما .* *6. يتعرف عل إن واخواتها ، ويتعلم القواعد الخاصة بها.* *7. يفهم الفرق بين إنّ و أنّ، وأنْو أنْ ، ويطبق ذلك عند استعمال كل منها في النصوص.* *8. يتعرف عل كان وأخواتها ، ويتعلم عمل كل منها في اللغة ، ويتمكن من استعمالها الصحيح في اللغة .* *9. يتعرف على عمل الأفعال الخمسة ، وعلامات إعرابها ، ويستطيع استعمالها بشكل صحيح في الخطاب ، أو النص.* *10. يتعرف على الأخطاء اللغوية ، ويتعلم تجنبها أثناء الكتابة.* *11. يدرس معلومات لغوية : الأضداد والمرادفات ، والفرق اللغوية ، والمعاملات النحوية ، ويفهم الفرق بينها ، ويتمكن من تحليلها .* *12. يتعلم إعراب المثنى .* *13. يتعرف على أنواع الجموع، ويتعلم التفريق بينها ، ويفهم كيفية إعرابها.* *يتعلم كيفية كتابة قواعد اللغة العربية في لوحة بيانية ، ويتمكن من تصويب الأخطاء اللغوية*
Module Learning	مخرجات التعلم للمادة الدراسية

Outcomes مخرجات التعلم للمادة الدراسية	مخرجات التعلم للمادة الدراسية هي: 1. قدرة الطالب على فهم التعبير القرآني ، وتحليل النصوص. 2. القدرة على استخدام القواعد النحوية ، وفهم الأساليب البلاغية والقدرة على استعمالها. 3. معرفة الطالب لشخصية الشاعر والأديب بدر شاكر السياب ، وأهم أشعاره وآثاره. 4. القدرة على التمييز بين علامات الإعراب الأصلية والفرعية ، والقدرة على استعمالها في الخطاب ، أو النص. 5. قدرة الطالب على التمييز بين الجمل الأسمية والفعلية ، وقدرته على التمييز بين أنواع المبتدأ، والخبر ، وكيفية استعمال الجمل وإعرابها. 6. فهم الطالب لعمل إنّ وأخواتها ، وقدرته على استعمالها بشكل صحيح في الجمل. 7. القدرة على التفريق بين أنّ وإنَّ، وإنْ وأنْ، واستعمالها في مواضعها الصحيحة في النصوص. 8. القدرة على فهم عمل كان وأخواتها ، واستعمالها بشكل صحيح. 9. التمكن من معرفة و أعراب الأفعال الخمسة ، وكيفية استعمالها في الجمل. 10. القدرة على معرفة وتجنب الأخطاء اللغوية عند الكتابة. 11. معرفة إعراب المثنى . 12. القدرة على التمييز بين الجموع ، وكيفية إعرابها ، واستعمالها في الجمل. معرفة الطالب لمعلومات لغوية : المرادفات. والأضداد ، والفرق اللغوية ، والمعادلات النحوية ، والقدرة على استخراجها ، أو استعمالها في الجم
Indicative Contents المحتويات الإرشادية	المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة: 1. مقدمة عن التعبير القرآني، وتعريف بالإعجاز اللغوي في آيات القرآن الكريم وجمالية اللغة العربية وبلاغتها. (4 ساعات) 2. التعريف بشخصية الشاعر الكبير بدر شاكر السياب ، وأهمية شعره في الأدب العربي و العراقي. (4 ساعات) 3. دراسة علامات الإعراب ، بنوعيها ، وكيفية الأعراب . (4 ساعات) 4. دراسة الجمل الأسمية والفعلية ، وتعلم التفريق بين الأنواع المبتدأ ، وأنواع الخبر. (4 ساعات) 5. دراسة إن وأخواتها ، وكيفية عملها وأعرابها . (4 ساعات) 6. دراسة الفرق بين إنّ وأنّ، وإنْ وأنْ، وكيفية عملها وأعرابها. (4 ساعات) 7. دراسة كان وأخواتها ، وكيفية عملها وإعرابها. (4 ساعات)

	8. (التعريف بالأفعال الخمسة ، وعملها وإعرابها.. (4 ساعات 9. (دراسة الأخطاء اللغوية الشائعة وتطبيقاتها في النصوص. (4 ساعات 10. تعلم المعلومات اللغوية : الأضداد والمترادفات، والفروق اللغوية ، والمعادلات النحوية. ((3 ساعات 11. (دراسة المثنى وأعرابه .(٣ساعات 12. (دراسة الجموع ، وأنواعها وإعرابها. (٣ ساعات (دراسة القواعد النحوية وكتابتها في رسم بياني ، وتصويب الأخطاء اللغوية. (3 ساعات

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	ستراتيجيات التعلم والتعليم المستخدمة في مادة اللغة تشمل مجموعة متنوعة من النهج والتقنيات التي تعزز عملية التعلم للطلاب. من بين هذه الاستراتيجيات: 1. التفاعل النشط: يتم تشجيع الطلاب على المشاركة والمشاركة الفعالة في الدروس من خلال المناقشات الجماعية والأنشطة التفاعلية. 2. التعلم التعاوني: يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي و المشاريع الجماعية، حيث يتعاون الطلاب مع بعضهم البعض لتحقيق أهداف التعلم المحددة. 3. التطبيق العملي: يتم توفير فرص للطلاب لتطبيق المفاهيم والمهارات المكتسبة في سياقات عملية وواقعية، مما يعزز التفاعل الفعال مع المادة. 4. استخدام التقنيات الحديثة: يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب والإنترنت للبحث والتعلم الذاتي. 5. توفير ردود فعل فورية: يتم توفير ردود فعل فورية وتقييم مستمر للطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم على تحسين أدائهم وتطوير مهاراتهم.

	6. التنويع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل و التعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والأنشطة العملية، و العروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب. 7. باستخدام هذه الاستراتيجيات، يتم تعزيز التفاعل والتعلم الفعال للطلاب، و تحفيزهم على المشاركة واكتساب المعرفة والمهارات بشكل شامل وشيق. -

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**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	3	15% (15)	5, 10, 14	LO #1, 2, 8 and 7
	Assignments	3	15% (15)	2, 9, 13	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-7
Summative assessment	Midterm Exam	2 hours	10% (10)	7	LO # 1-4
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	التعبير القرآني، نحويا من حيث تركيب الجملة والنص. بلاغيا من حيث التأثير الفني، و

	الرجوع إلى المصدر (كتاب التعبير القرآني) للدكتور فاضل السامرائي
Week 2	التعبير القرآني، نحويا من حيث تركيب الجملة والنص. بلاغيا من حيث التأثير الفني، و الرجوع إلى المصدر (كتاب التعبير القرآني) للدكتور فاضل السامرائي
Week 3	الشاعر بدر شاكر السياب
Week 4	علامات الإعراب الأصلية:(الفتحة والضمة، والكسرة)، وعلامات الإعراب الفرعية :(الألف ، والواو، والياء).
Week 5	الجمل الأسمية – المبتدأ والخبر ، وانواع المبتدأ ، وأنواع الخبر
Week 6	أنّ وأخواتها
Week 7	الفرق بين إنّ وأنّ ، وأن وإن
Week 8	كان وأخواتها.
Week 9	الأفعال الخمسة
Week 10	1) الأخطاء اللغوية الجزء)
Week 11	2) الأخطاء اللغوية الجزء)
Week 12	معلومات لغوية : المرادفات والاضداد، وفروق لغوية. ومعادلات نحوية
Week 13	المثنى وإعرابه
Week 14	أنواع الجموع : جمع المذكر السالم- جمع المؤنث السالم- جمع التكسير
Week 15	هندسة النحو: قواعد اللغة العربية في لوحة تعليمية ، وتصويبات لغوية

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• ملزمة اللغة العربية (المعممة من وزارة التعليم العالي والبحث العلمي)	Yes
Recommended Texts	• • التعبير القرآني للدكتور فاضل السامرائي	No
Websites	Collage E- Library	

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	Biomedical Transducers and Sensors			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024045				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	4	
Administering Department	2		College	EETC	
Module Leader	Hazeem Mohammad		e-mail		
Module Leader's Acad. Title	Lecture		Module Leader's Qualification	MSc.	
Module Tutor	Hazeem Mohammad		e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	19/1/2025		Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Fundamental of Electrical Engineering (AC)	Semester	UGI-S2
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Analyze errors and uncertainty of experimental results obtained from biomedical sensors. 2. Understand requirements, calibration, characteristics, and parameters of biomedical sensors. 3. Design with confidence signal conditioning systems required for processing the sensors responses. 4. Understand the operating principle, types, parameters, signal conditioning, and applications of resistive, reactance variation and self -generating sensors. 5. Understand the operating principle of different types of optical sensors and their features. 6. Understand the operation, models, and parameters of ultrasound transducers. 7. Understand the design, main building blocks, features, and calibration of intelligent sensors.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define biomedical sensors, biosensors, and biomedical transducers. 2. Classify the biomedical sensors. Acquire knowledge about sensor data processing and feature extraction. 3. Recognize the requirements of biomedical sensors. 4. Explain the Static and dynamic characteristics of biomedical sensors. 5. Explain the requirements of signal conditioning circuits suitable for biomedical sensors. 6. Identify design principles of conditioning circuits. 7. Identify the different types of resistive, reactance variation and self- 8. generating sensors. 9. Explain the operating principle, parameters, calibration and applications. of resistive, reactance variation and self-generating sensors. 10. Identify the different types of optical sensors. 11. Reveal the advantages of optical sensors. 12. Classify ultrasound transducers. 13. Recognize the main parts of ultrasound transducers. 14. List the main features of intelligent sensors.
Indicative Contents	Indicative Contents including the following:

المحتويات الإرشادية	General concept and terminology, Sensor classification and calibration, static and dynamic characteristics, errors [10 hrs] Resistive Temperature Detectors (RTD), Thermistors, light-dependent resistors, signal conditioning for resistive sensors [5hrs] Capacitive sensors, Inductive sensors, Electromagnetic sensors, signal conditioning for reactance variation sensors [5 hrs] Thermoelectric sensors, Piezoelectric sensors, Electrochemical sensors, Signal conditioning for self-generating sensors.[7 hrs] Optical techniques, General principles of optical sensing, Fiber-optic basics, Fiber-optic sensor technologies and applications[7 hrs] Fundamentals of ultrasonic-based sensors, Ultrasonic-based sensing methods and applications.[8 hrs] Definition, parameters, features, operating principle , main building blocks and applications.[5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Active learning, where students should be active and involved in the learning process inside the classroom, will be emphasized in the delivery of this course. ➤ Different active learning methods/approaches such as: Engaged Learning, Project-Based Learning, Cooperative Learning, Problem-based Learning, Structured Problem-solving, will be used. ➤ The teaching method that will be used in this course will be composed of a series of mini lectures interrupted with frequent discussions and brainstorming exercises. PowerPoint presentations will be prepared for the course materials. ➤ Use software packages for design and simulation of signal

	conditioning circuits implemented using these sensors.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	10% (10)	6,9	LO # 1-4, and 5-8
	Assignments	2	10% (5)	5,12	LO # 1-4, 5-10
	Projects / Lab.	1	10% (10)	Continuous	Continuous
	Report	1	10% (10)	14	LO # 5-14
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	LO # 1-11
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1,2	**Introduction to Biomedical Sensors** General concept and terminology, Sensor classification and calibration, static and dynamic characteristics, errors and uncertainty.
Week 3,4	**Resistive Sensors and their signal conditioning** Potentiometers, Strain gages, Resistive Temperature Detectors (RTD), Thermistors, light-dependent resistors, signal conditioning for resistive sensors
Week 5,6	**Reactance Variation and Electromagnetic Sensors** Capacitive sensors, Inductive sensors, Electromagnetic sensors, signal conditioning for reactance variation sensors,
Week 7	**Mid- Exam**
Week 8,9	**Self-Generating Sensors and Signal Conditioning** Thermoelectric sensors, Piezoelectric sensors, Electrochemical sensors, Signal conditioning for self-generating sensors.
Week 10,11	**Optical Sensors** Optical techniques, General principles of optical sensing, Fiber-optic basics, Fiber-optic sensor technologies and applications.
Week 12,13	**Ultrasound Transducers** Fundamentals of ultrasonic-based sensors, Ultrasonic-based sensing methods and applications.
Week 14	**Intelligent Sensors** Definition, parameters, features, operating principle , main building blocks and applications.
Week 15	Preparatory week before final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1,2	Characteristics of various Biomedical sensors(Pulse sensor, Galvanic skin Response, Glucose sensor, EMG sensor).

Week 3,4	Measurement of Resistance, Inductance and Capacitance using bridge circuits.
Week 5	Measurement of temperature using thermistor and RTD.
Week 6	Design of preamplifiers to acquire bio-signals along with impedance matching circuit using suitable ICs.
Week 7,8	Design of EEG, ECG amplifiers and Measurement of heart rate.
Week 9,10	Acquire and display electrical and biological biosignals on a computer using the appropriate hardware and software tools.
Week 11	e-Health Sensor Platform V2.0 using Arduino and Raspberry Pi.
Week 12	Measurement of respiration rate.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Sensors and Signal Conditioning, Ramon Pallas-Areny and John G. Webster, John Wiley & Sons, 2001,2nd Edition	No
Recommended Texts	Biosensors: An Introduction , Eggins, Brian, John Wiley & Sons, 1996,1st Edition	No
Websites	https://www.multisim.com/	

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	Laboratory Medical Instrumentation II			**Module Delivery**	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	UOMU024041				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	2		**Semester of Delivery**	4	
Administering Department	MIET		**College**	EETC	
Module Leader	Hassan Omar		**e-mail**		
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD.	
Module Tutor	Hassan Omar		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	19/1/2025		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Laboratory Medical Instrumentation I	**Semester**	UGII-S3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills to diagnosis the medical instruments faults. 2. The graduated students will gain the ability of knowledge of different parts of medical instruments. 3. Development and training the engineering technical staffs on the medical device maintenance. 4. Preparation of the research and studies to improve and develop the action of medical devices. 5. Put the proposals and alternatives for the medical devices. 6. To describe the types of laboratory medical instruments. 7. To explain the principal work of the laboratory medical devices techniques. 8. To understand the maintenance of laboratory medical devices and their electrical and mechanical faults.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Introduction about the laboratory Design, Rules and limitations. 2. Define, explain, and describe the centrifuge and understand the electrical and electronic parts. 3. Define, explain, and describe Microscope and understand the electrical and electronic parts. 4. List and recognize the types of microscopes. 5. Define, explain, and describe Polymerase chain reaction (PCR). and understand the electrical and electronic parts. 6. Definition of Laboratory incubators and explain their applications. 7. List and understand the types of Laboratory Incubators. 8. Define and explain Oven and its medical application. 9. Define and explain Autoclave and its medical application. 10. Describe and understand water distillation and its application with the medical field. 11. Definition and understanding of the CBC System. 12. Define the principle of CBC Medical system. 13. Faults and maintenance of medical instrumentations
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Medical instrumentation definition, analysis lists, work security

	rules, and best laboratory use guidelines [14hr]. Laboratory instruments criteria, types, components, advantages and disadvantages, physical and medical application. [12hr]. Medical instrumentation faults and maintenance, analysis lists, work security rules, and best laboratory use guidelines [14 hr]. Explain Polymerase chain reaction (pcr)and definition of Laboratory incubators[14 hr]. Types of Laboratory Incubators and oven and its medical application[14hr]. Autoclave medical application and water distillation[14hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the design, while at the same time refining and expanding their medical instrumentations thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	% (1 0)	3,10	LO # 1,2,3…..14 ,
	Assignments	2	% (10)	4,8	LO # 6,13
	Projects / Lab.	1	%(10)	6	LO #3
	Report	2	% (10)	5,9	LO # 7,12
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction about the laboratory Design.
Week2	Definition of Centrifuge
Week 3	Applications of Centrifuge
Week 4	Definition of Microscopes.
Week 5	Types of Microscopes.
Week 6	Water distillation
Week7	Mid Term exam
Week 8	Oven and its medical application.
Week 9	Autoclave and its medical application.
Week 10	Definition of Laboratory incubators.
Week 11	Types of Laboratory Incubators.
Week 12	Polymerase chain reaction (PCR).
Week 13	Applications of (PCR)
Week 14	Definition of Complete Blood Counter (CBC) Principle of (CBC)

Week 15	A preparatory week before final exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction about the laboratory Design
Week 2	Centrifuge
Week 3	Microscopes.
Week 4	Types of Microscopes.
Week 5	Water distillation
Week6	Oven and its medical application.
Week7	Autoclave and its medical application.
Week 8	Laboratory Incubators.
Week 9	Polymerase chain reaction (PCR).
Week10	Complete Blood Counter (CBC)
Week11	Faults and maintenance of medical lab. instruments

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Biomedical device technology ,by ANTHONY Y. K. CHAN, MSc, MEng, PEng, CCE	
Recommended Texts	Ananthi ,2005,"A text book of medical instruments	
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	Digital Electronics			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024043				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	4	
Administering Department	MIET		College	EETC	
Module Leader	Hussain Abd Alwahab		e-mail		
Module Leader's Acad. Title	Lecture		Module Leader's Qualification	PHD	
Module Tutor	Hussain Abd Alwahab		e-mail	jaber.hamid.majeed@uomus.edu.iq	
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	19/1/2025		Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Electronics Circuits I	Semester	S3
Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To learn the basics of logical circuits which are used in computers. 2. To understand how the logical medical instrumentations to work 3. To program the logical medical instrumentations 4. To design the logical medical instrumentations 5. To learn how to use logical tables to perform the logical medical instrumentations 6. TO maintain the logical medical instrumentations 7. To suggest how to build modern the logical medical instrumentations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At ending of course, student will: 1-know the numbers systems, and conversion between them. 2-know binary codes. 3-design binary gates, and use Boolean algebra. 4-design and simplify the arithmetic circuits. 5- define Karnaugh maps. 6- know how flip-flops works RS, JK. 7- design flip-flops D, T. 8-define the work principles of counters and its types. 9-know the shift registers and types. 10-principles of decoders. 11-identify the Multiplexers and De-Multiplexers. 12-conversion of analog to digital circuits.
Indicative Contents المحتويات الإرشادية	**Numbers systems, Binary, Octal, Hexadecimal [4 H].** **Codes numbers [4 H].** **Arithmetic circuits [10 H].** **De Margan's theorems [4 H].** **Karnaugh map [8 H].** **Flip – Flop: RS, RST, JK, D, FF [8 H].** **Asynchronous counter and synchronous [10 H].** **Shift registers [10 H].** **Multiplexer, De multiplexer [4 H].** **Decoder [8 H].** **Analog conversion [4 H].**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3, 9	LO #1, 2, 4,11 and 12
	Assignments	2	10% (10)	3, 13	LO # 4, 5, 7 and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Report	13	10% (10)	13	LO # 6, 8 and11
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-8
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Number system: Binary numbers, Octal numbers, Hexadecimal numbers,
Week 2	Binary codes
Week 3	Logic gates, De Margan's theorems, Laws and theorem of Boolean algebra
Week 4	Arithmetic circuit, Simplifying logic circuits:
Week 5	fundamentals products, sum of products, algebraic simplification
Week 6	Truth table to Karnaugh map
Week 7	Flip – Flop: RS, RST, JK, D, FF
Week 8	Counters: Asynchronous counter
Week 9	Counters: synchronous counter
Week 10	Shift registers: Serial in -Serial out shift register Serial in -Parallel out shift register
Week 11	Shift registers: Bidirectional Shift Register
Week 12	Multiplexer and De multiplexer
Week 13	Decoder
Week 14	Digital to Analog converter
Week 15	Final Exam (Practical)
Week 16	Final Exam (Theoritical)

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Logic Gates (NOT, AND)
Week 2	Lab 2: Logic Gates (OR, NAND, NOR)
Week 3	Lab 3: Logic Gates (XOR, XNOR)
Week 4	Lab 4: Exercises
Week 5	Lab 5: Universal Gates (NAND, NOR)

Week 6	Lab 6: Flip-Flop
Week 7	Lab 7: Adder (Half and Full Adder)
Week 8	Lab 8: Subtractor (Half and Full Subtractor)
Week 9	Lab 9: Comparator
Week 10	Lab 10: Asynchronous Binary Counter Up
Week 11	Lab 11: Asynchronous Binary Down Counter
Week 12	Lab 12: Asynchronous Binary Decade Counter
Week 13	Lab 13: Asynchronous MOD Counter
Week 14	Lab 14: Asynchronous Binary Counter (count from number to another)

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	DIGITAL FUNDAMENTALS / FLOYD	YES
Recommended Texts	Digital Logic Design - 4th Edition	NO
Websites	https://www.udemy.com/course/digital-electronics-logic-design/?utm_source=adwords&utm_medium=udemyads&utm_campaign=DSA_Catchall_la.EN_cc.ROW&utm_content=deal4584&utm_term=_._ag_88010211481_._ad_535397282061_._kw__._de_c_._dm__._pl__._ti_dsa-52949608673_._li_1007949_._pd__._&matchtype=&gclid=CjwKCAjwp6CkBhB_EiwAlQVyxcuQ427tsVehXbetXE4NUFlekP4rqq-PrCWgQflucPuo7Mqz8SXRVxoC5asQAvD_BwE	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors

	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

Module Information
معلومات المادة الدراسية

Module Title	**Electronic Circuits II**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU024042		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		
Module Level	UG11	**Semester of Delivery**	4
Administering Department	MIET	**College**	EETC
Module Leader	Maher Faik	**e-mail**	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD.
Module Tutor	Maher Faik	**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	19/1/2025	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Electronics Circuits I	**Semester**	UGII-S3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills of electronic circuits 2. The graduated students will gain the ability of knowledge of different parts of electronic circuits. 3. Development and training the engineering technical staffs on the electronic circuits. 4. Preparation the research and studies to improve and develop the action of electronic circuits. 5. Prepare application engineers in technical and electronic engineers. 6. Put the proposals and alternatives for the electronic devices.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Become aware of the general characteristics of electronic devices. 2. Be able to describe the difference types of electronic categories. 3. Develop a clear understanding of the basic operation and characteristics of electronic devices. 4. Become familiar with the use of equivalent circuits to analyze series, parallel, and series-parallel electronic networks. 5. Be able to predict the output response of an electronic networks. 6. Become familiar with the analysis of and the range of applications for electronic devices. 7. Become familiar with the basic construction and operation of the various types of electronic categories! 8. Be able to test a various type of electronic terminals. 9. Be able to determine the dc levels for the variety of important electronic circuits. 10. Understand how to measure the important voltage levels of electronic circuits. 11. Begin to understand the troubleshooting process as applied to electronic configurations. 12. Develop a sense for the stability factors of an electronic circuits. 13. Learn to use the equivalent model to find the important ac parameters for an amplifier. 14. Develop some skill in troubleshooting ac amplifier networks.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A Electronic Theory

	JFETs: n -channel, p -channel, TRANSFER CHARACTERISTICS, Shockley's Equation , Shorthand Method [10 hrs] FET Biasing -Fixed-bias configuration, self-bias configuration, voltage-divider bias arrangement; common gate configuration , depletion-type MOSFETs , enhancement-type MOSFET [10 hrs] Revision problem classes [6 hrs] <u>Part B – Frequency response</u> Decibels- General Frequency Considerations, Low-Frequency Analysis—Bode Plot, Low-Frequency Response—BJT Amplifier with RL, Low -Frequency Response—FET Amplifier, High-Frequency Response—BJT Amplifier, High-Frequency Response—FET Amplifier [12 hrs] Operational Amplifiers - Differential Amplifier Circuit, BiFET, BiMOS, and CMOS Differential Amplifier Circuits, Op-Amp Basics, Practical Op-Amp Circuits, Op-Amp Specifications—DC Offset Parameters. [12 hrs] <u>Part C - Power Amplifiers</u> Series-Fed Class A Amplifier- Transformer-Coupled Class A Amplifier, Class B Amplifier Operation, Class B Amplifier Circuits, Amplifier Distortion.[10 hrs] Power Supplies (Voltage Regulators) [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be encourage active participation and engagement of students through activities such as group discussions, hands-on experiments, problem-solving tasks, and case studies. This approach promotes critical thinking, collaboration, and knowledge application and encourage students to explore and discover knowledge through inquiry and investigation. Pose open-ended questions or problem scenarios that require learners to research, analyze, and draw conclusions independently.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	16% (16)	5,10	LO #1,2,10 and 11
	Assignments	2	8% (8)	2,12	LO # 3,4 ,6,7 and 14
	Projects / Lab.	1	8% (8)	continuous	
	Report	1	8% (8)	13	LO # 5,8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1,2,5,9,10 and 13
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	FET Amplifiers.
Week 2	JFET Small-Signal Model

Week 3	General Frequency Considerations
Week 4	BJT frequency response
Week 5	JFET frequency response
Week 6	Power amplifier.
Week 7	Mid- Exam
Week 8	Series-Fed Class A Amplifier
Week 9	Class B,C and D amplifiers
Week 10	Feedback and Oscillator Circuits
Week 11	PNPN and Other Devices
Week 12	Operational amplifier
Week 13	Operational amplifier applications
Week 14	Power Supplies Voltage Regulators
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Common emitter transistor characteristics
Week 2	Lab 2: Common collector transistor
Week 3	Lab 3: Common emitter amplifier
Week 4	Lab 4: Transistor biasing (part 1)
Week 5	Lab 5: Transistor biasing (part 2)
Week 6	Lab 6: common collector amplifier
Week 7	Lab 7: Common base amplifier
Week 8	Lab 8: Collector feedback amplifier circuit
Week 9	Lab 9: Voltage divider biasing circuit
Week 10	Lab 10: Emitter follower
Week 11	Lab 11: JFET characteristics
Week 12	Lab12: JFET amplifier
Week 13	Lab13: operational amplifier (part1)
Week 14	Lab14: operational amplifier (part 2)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	electronic devices and circuit theory 11th edition, Robert L. Boylestad , Louis Nashelsky	Yes
Recommended Texts		No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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 Language II			Module Delivery	
Module Type	B			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU0000014				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	2		Semester of Delivery	4	
Administering Department	MIET		College	EETC	
Module Leader	Syraan Najem		e-mail		
Module Leader's Acad. Title	Assistant Lecturer		Module Leader's Qualification	M.Sc	
Module Tutor	Syraan Najem		e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	19/1/2025		Version Number	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	English Language1	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	*Module Aims* The module aims of the English Language Course are structured to support learners at the intermediate to upper-intermediate level in enhancing their English language skills and achieving specific learning outcomes. By the end of this course, students will: 1. *Grammar Mastery:* - Achieve a comprehensive understanding of advanced grammar rules, including the use of auxiliary verbs, present simple, present continuous, past simple, present perfect, future forms, questions and negatives, modals, comparatives and superlatives, conditionals, passive voice, relative clauses, present perfect continuous, and reported speech. 2. *Vocabulary Expansion:* - Expand their vocabulary across various topics and contexts, such as everyday expressions, common activities, storytelling, experiences, permissions, hypothetical situations, descriptive details, and phrasal verbs. This will include learning advanced vocabulary related to describing characteristics, actions, and consequences. 3. *Everyday English Proficiency:* - Develop practical language skills for everyday communication, focusing on effective use of everyday expressions, making comparisons, discussing future intentions, and navigating social interactions. This includes enhancing the ability to participate in conversations and use language appropriately in various social settings. 4. *Reading Comprehension:* - Improve reading comprehension skills through engagement with diverse texts, including stories, articles, and informative content. Students will analyze and interpret texts, building the ability to understand complex language structures and themes. 5. *Writing Competence:* - Enhance writing skills by composing various forms of written content, such as short stories, comparative essays, descriptive passages, and reviews. Students will learn to use linking words, express opinions, and structure their writing coherently. 6. *Critical Thinking and Analysis:* - Develop critical thinking skills by analyzing and discussing texts, drawing comparisons, and making inferences. Students will be encouraged to engage with texts critically, assessing arguments and evidence. 7. *Cultural Awareness:* - Gain insights into different cultures and lifestyles through readings and discussions, fostering a broader understanding of the world. This will help students develop cultural sensitivity and an appreciation for diversity.

	. 8. *Effective Communication:* - Improve their ability to express ideas clearly and confidently in both spoken and written forms. The course will emphasize clarity, coherence, and fluency in communication, preparing students to articulate their thoughts effectively. 9. *Language Assessment Preparation:* - Prepare for language assessments, including a final review and exam, by consolidating their understanding of grammar, vocabulary, and reading comprehension. This will include practicing various question formats and test-taking strategies. 10. *Independent Learning:* - Develop skills for independent learning, enabling students to continue enhancing their English proficiency beyond the course. This includes fostering a habit of self-study and utilizing resources effectively. 11. *Language Fluency:* - Work towards achieving greater fluency in English, allowing students to engage in complex conversations, express nuanced ideas, and write with increased sophistication and ease. 12. *Cultural Competency:* - Build cultural competence and sensitivity through exposure to diverse texts and discussions about different cultural perspectives. This will enhance students' ability to interact respectfully and knowledgeably in multicultural contexts. These module aims provide a comprehensive framework for student learning and development, ensuring that participants gain both linguistic competence and cultural awareness throughout the course.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Module Learning Outcomes Students will comprehend and discuss a variety of texts on diverse topics, enhancing their reading and analytical skills. Students will expand their vocabulary related to various topics, including everyday expressions, actions, experiences, and descriptive details. Students will be able to write various forms of text, including short stories, comparative essays, descriptive passages, and reviews. Students will use auxiliary verbs correctly in sentences, mastering their application in different tenses. Students will distinguish between present simple, past simple, present

	continuous, and present perfect tenses, understanding their appropriate contexts. Students will study and apply modal verbs such as must, should, can, and could, understanding their use in expressing necessity, possibility, and advice. s tudents will understand and correctly use comparative and superlative adjectives to describe and compare objects and situations. Students will focus on verb patterns and express future intentions using appropriate grammatical structures. Students will learn the correct usage of first and second conditionals and the passive voice in various contexts. Students will effectively use defining and non-defining relative clauses to provide additional information in sentences. Students will describe ongoing actions and experiences using the present perfect continuous tense and appropriate time expressions. Students will learn to report statements, questions, and commands accurately, mastering the use of reported speech. Students will discuss hypothetical situations and understand the use of time and conditional clauses in various contexts. Students will acquire and use advanced vocabulary, including phrasal verbs and synonyms/antonyms, in both written and spoken communication.
Indicative Contents المحتويات الإرشادية	Intermediate Book (Based on "New Headway Plus: Intermediate Student's Book") Total Hours: 21 hours Week 1 (2 hours) Grammar: Auxiliary Verbs (Unit 1) Focus: Usage of "to be," "have," and other auxiliary verbs. Vocabulary: Everyday Expressions (Unit 1) Reading: "It's a Wonderful World!" (Unit 1) Writing: Basic sentences using auxiliary verbs Week 2 (2 hours) Grammar: Present Simple (Unit 2) Focus: Usage in daily routines and habits. Vocabulary: Common Activities (Unit 2) Reading: "Get Happy!" (Unit 2) Week 3 (2 hours) Grammar: Present Continuous (Unit 2)

	Focus: Actions happening now. Vocabulary: Actions and Activities (Unit 2) Reading: "Simple or Continuous?" (Unit 2) Week 4 (2 hours) Grammar: Past Simple (Unit 3) Focus: Narrating past events. Vocabulary: Telling Stories (Unit 3) Reading: "Telling Tales" (Unit 3) Writing: Writing a short story using past simple tense Week 5 (2 hours) Grammar: Present Perfect (Unit 1, 3) Focus: Describing experiences and actions with present relevance. Vocabulary: Experiences and Achievements (Unit 1, 3) Reading: "Present Perfect Stories" (Unit 1, 3) Week 6 (2 hours) Grammar: Future Forms (Unit 5) Focus: "Going to," "will," and present continuous for future plans. Vocabulary: Plans and Predictions (Unit 5) Reading: "On the Move" (Unit 5) Week 7 (2 hours) Grammar: Questions and Negatives (Unit 4) Focus: Formulating questions and negative sentences. Vocabulary: Social Interactions (Unit 4) Reading: "Nothing but the Truth" (Unit 4) Week 8 (2 hours) Grammar: Modals (Unit 4, 7) Focus: Expressing obligation, permission, and possibility. Vocabulary: Permissions and Possibilities (Unit 4, 7) Reading: "Doing the Right Thing" (Unit 4) Week 9 (2 hours) Grammar: Comparatives and Superlatives (Unit 6) Focus: Comparing people, objects, and situations. Vocabulary: Describing Characteristics (Unit 6) Reading: "Making Comparisons" (Unit 6) Writing: Comparative essay Week 10 (1 hour) Grammar: Conditionals (Unit 8) Focus: First and second conditional structures. Vocabulary: Hypothetical Situations (Unit 8) Reading: "Just Imagine!" (Unit 8) Week 11 (1 hour) Grammar: Passive Voice (Unit 2, 3) Focus: Usage in various tenses to emphasize actions. Vocabulary: Actions and Consequences (Unit 2, 3) Reading: "Passive Constructions" (Unit 2, 3) Week 12 (1 hour) Grammar: Relative Clauses (Unit 8)

	Focus: Defining and non-defining clauses. Vocabulary: Descriptive Details (Unit 8) Reading: "Descriptive Sentences" (Unit 8) Week 13 (1 hour) Grammar: Present Perfect Continuous (Unit 10) Focus: Describing ongoing actions and experiences. Vocabulary: Time Expressions (Unit 10) Reading: "Obsessions" (Unit 10) Writing: Describing ongoing activities using present perfect continuous Week 14 (1 hour) Grammar: Reported Speech (Unit 11) Focus: Reporting statements, questions, and commands. Vocabulary: Reporting Verbs (Unit 11) Reading: "Reported Conversations" (Unit 11) Week 15 (2 hours) Review and Exam Preparation Focus: Reviewing key grammar, vocabulary, and reading topics covered. Upper-Intermediate Book (Based on "New Headway Plus: Upper-Intermediate Student's Book") Total Hours: 7 hours (Max 25% of Total Content) Week 8 (1 hour) Reading: "Getting on Together" (Unit 7) Focus: Permissions and possibilities. Week 9 (1 hour) Vocabulary: Describing Characteristics (Unit 6) Reading: "Making it Big" (Unit 6) Week 10 (1 hour) Vocabulary: Hypothetical Situations (Unit 8) Reading: "Going to Extremes" (Unit 8) Week 11 (1 hour) Vocabulary: Actions and Consequences (Unit 7) Reading: "Getting on Together" (Unit 7) Week 12 (1 hour) Vocabulary: Descriptive Details (Unit 8) Reading: "Going to Extremes" (Unit 8) Week 13 (1 hour) Vocabulary: Time Expressions (Unit 10) Reading: "Risking Life and Limb" (Unit 10) Week 14 (1 hour) Vocabulary: Reporting Verbs (Unit 11) Reading: "In Your Dreams" (Unit 11)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and Teaching Strategies for the English Language Course Interactive Language Practice: Engage learners in communicative activities that promote active participation and practical language use. Strategies include pair work, group discussions, role-plays, and language games, which are designed to foster speaking and listening skills in an engaging and supportive environment. Use of Authentic Materials: Integrate authentic materials such as videos, audio recordings, and reading texts that reflect real-life language use. These materials help learners develop their listening, speaking, reading, and writing skills by exposing them to various dialects, accents, and real-world contexts. Task-Based Learning: Design tasks and projects that require learners to use the target language to accomplish specific objectives or solve problems. This approach promotes meaningful language use, encouraging learners to think critically and develop problem-solving skills while using English in practical scenarios. Visual Aids and Multimedia: Utilize visual aids, such as charts, diagrams, and multimedia resources, to enhance language learning and comprehension. These tools aid in vocabulary acquisition, provide context, and support understanding, making abstract concepts more concrete and accessible. Error Correction and Feedback: Provide timely and constructive feedback on learners' language production, focusing on both strengths and areas for improvement. Encourage self-correction and peer correction, fostering a supportive learning environment where students can learn from their mistakes and

	from each other. This approach helps build confidence and promotes a growth mindset.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**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**	3	15% (15)	5, 10, 14	LO #1, 2, 8 and 7
	Assignments	3	15% (15)	2, 9, 13	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-7
Summative assessment	**Midterm Exam**	2 hours	10% (10)	7	LO # 1-4
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Grammar: Auxiliary Verbs (Intermediate: Unit 1) Vocabulary: Everyday Expressions (Intermediate: Unit 1) Reading: "It's a Wonderful World!" (Intermediate: Unit 1) Writing: Basic sentences using auxiliary verbs (Intermediate: Unit 1)
Week 2	Grammar: Present Simple (Intermediate: Unit 2) Vocabulary: Common Activities (Intermediate: Unit 2) Reading: "Get Happy!" (Intermediate: Unit 2)
Week 3	Grammar: Present Continuous (Intermediate: Unit 2) Vocabulary: Actions and Activities (Intermediate: Unit 2) Reading: "Simple or Continuous?" (Intermediate: Unit 2)

Week 4	Grammar: Past Simple (Intermediate: Unit 3) Vocabulary: Telling Stories (Intermediate: Unit 3) Reading: "Telling Tales" (Intermediate: Unit 3) Writing: Writing a short story using past simple tense (Intermediate: Unit 3)
Week 5	Grammar: Present Perfect (Intermediate: Unit 1, 3) Vocabulary: Experiences and Achievements (Intermediate: Unit 1, 3) Reading: "Present Perfect Stories" (Intermediate: Unit 1, 3)
Week 6	Grammar: Future Forms (Intermediate: Unit 5) Vocabulary: Plans and Predictions (Intermediate: Unit 5) Reading: "On the Move" (Intermediate: Unit 5)
Week 7	Grammar: Questions and Negatives (Intermediate: Unit 4) Vocabulary: Social Interactions (Intermediate: Unit 4) Reading: "Nothing but the Truth" (Intermediate: Unit 4)
Week 8	Grammar: Modals (Intermediate: Unit 4, 7) Vocabulary: Permissions and Possibilities (Intermediate: Unit 4, 7; Upper-Intermediate: Unit 7) Reading: "Doing the Right Thing" (Intermediate: Unit 4; Upper-Intermediate: Unit 7 "Getting on Together")
Week 9	Grammar: Comparatives and Superlatives (Intermediate: Unit 6) Vocabulary: Describing Characteristics (Intermediate: Unit 6; Upper-Intermediate: Unit 6) Reading: "Making Comparisons" (Intermediate: Unit 6; Upper-Intermediate: Unit 6 "Making it Big") Writing: Comparative essay (Intermediate: Unit 6)
Week 10	Grammar: Conditionals (Intermediate: Unit 8) Vocabulary: Hypothetical Situations (Intermediate: Unit 8; Upper-Intermediate: Unit 8) Reading: "Just Imagine!" (Intermediate: Unit 8; Upper-Intermediate: Unit 8 "Going to Extremes")
Week 11	Grammar: Passive Voice (Intermediate: Unit 2, 3) Vocabulary: Actions and Consequences (Intermediate: Unit 2, 3; Upper-Intermediate: Unit 7) Reading: "Passive Constructions" (Intermediate: Unit 2, 3; Upper-Intermediate: Unit 7 "Getting on Together")
Week 12	Grammar: Relative Clauses (Intermediate: Unit 8) Vocabulary: Descriptive Details (Intermediate: Unit 8; Upper-Intermediate: Unit 8) Reading: "Descriptive Sentences" (Intermediate: Unit 8; Upper-Intermediate: Unit 8 "Going to Extremes")
Week 13	Grammar: Present Perfect Continuous (Intermediate: Unit 10) Vocabulary: Time Expressions (Intermediate: Unit 10; Upper-Intermediate: Unit 10)

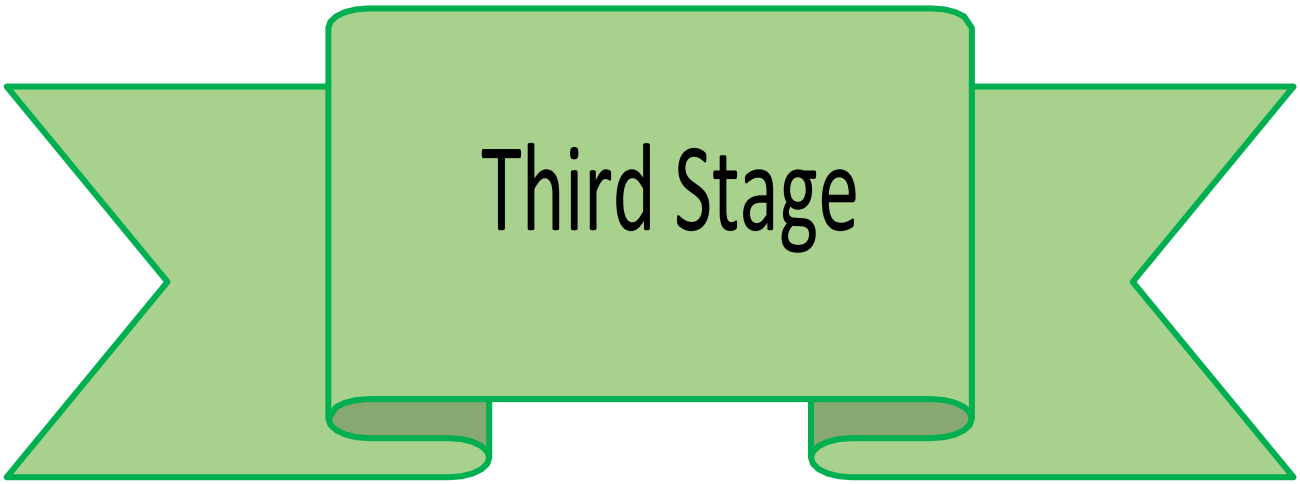
	Reading: "Obsessions" (Intermediate: Unit 10; Upper-Intermediate: Unit 10 "Risking Life and Limb") Writing: Describing ongoing activities using present perfect continuous (Intermediate: Unit 10)
Week 14	Grammar: Reported Speech (Intermediate: Unit 11) Vocabulary: Reporting Verbs (Intermediate: Unit 11; Upper-Intermediate: Unit 11) Reading: "Reported Conversations" (Intermediate: Unit 11; Upper-Intermediate: Unit 11 "In Your Dreams")
Week 15	Review and Exam Preparation

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• L. Soars and J. Soars, New Headway Plus - Intermediate, 4th ed. Oxford: Oxford University Press, 2019. • Soars, J., Soars, L. New Headway Plus: Upper-Intermediate. United Kingdom: Oxford University Press.	Yes
Recommended Texts	• Audio CDs or Online Audio: Recordings of listening exercises, dialogues, and pronunciation practice.	No
Websites	Collage E- Library	

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.


Third Stage

Course Description Form

13. Course Name:	
Digital Signal Processing	
14. Course Code:	
MU0243004	
15. Semester / Year:	
2024-2025	
16. Description Preparation Date:	
2024/10/16	
17. Available Attendance Forms:	
Weekly: 2 practical hours and 2 theoretical hours	
18. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours and 6 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Dr. Maher Faik	
20.Course Objectives	
Course Objectives	The digital signal processing systems curriculum aims to introduce the student to the basics and concepts of digital signal processing and processes that take place on it, design and analysis.
21. Teaching and Learning Strategies	
Strategy	✓Providing students with the basics and additional topics relate to the previous skills learning outcomes To solve practical problems. ✓Solution of a group of practical examples by academic staff.
	✓Students participate during the lecture by solving some practi problems.
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1^{st}	4	Student understanding lecture	Introduction of DSP	Theoretical practical lectur	Daily and monthly testing
2^{nd}	4	Student understanding lecture	Classification of Signal.	Theoretical practical lectur	Daily and monthly testing
3^{th},4^{th}	8	Student understanding lecture	Properties of Signal	Theoretical practical lectur	Daily and monthly testing
5^{th},6^{th}	8	Student understanding lecture	Sampled data system	Theoretical practical lectur	Daily and monthly testing
7^{th},8^{th}	8	Student understanding lecture	Convolution	Theoretical practical lectur	Daily and monthly testing
9^{th},10^{th}	8	Student understanding lecture.	Fourier transformer	Theoretical practical lectur	Daily and monthly testing
11^{th},12^{th}, 13^{th}	12	Student understanding lecture	Fourier series	Theoretical practical lectur	Daily and monthly testing
14^{th},15^{th}, 16^{th}	12	Student understanding lecture.	Digital filtering	Theoretical practical lectur	Daily and monthly testing
17^{th},18^{th}	8	Student understanding lecture	Z-transform.	Theoretical practical lectur	Daily and monthly testing
19^{rd}	4	Student understanding lecture.	Discrete Fourier transformer.	Theoretical practical lectur	Daily and monthly testing
20^{th},21^{th}	8	Student understanding lecture	Fast Fourier transformer.	Theoretical practical lectur	Daily and monthly testing
22^{th}	4	Student understanding lecture.	Digital filtering.	Theoretical practical lectur	Daily and monthly testing
23^{th},24^{th}	8	Student understanding lecture	IIR digital filtering.	Theoretical practical lectur	Daily and monthly testing

25^{th},26^{th}	8	Student understanding lecture.	FIR digital filtering	Theoretical practical lectur	Daily and monthly testing
27^{th},28^{th}	8	Student understanding lecture.	Speech Processing.	Theoretical practical lectur	Daily and monthly testing
29^{th},30^{th}	8	Student Understanding lecture	Image Processing.	Theoretical practical lectur	Daily and monthly testing

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Schaum's Outline of Analog and Digital Communication
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Global research on digital signal Processing systems from the Internet
Electronic References, Websites	

Course Description Form

13. Course Name:	
Electrical technology	
14. Course Code:	
MIT 0302	
15. Semester / Year:	
Annual	
16. Description Preparation Date:	
16-10-2024	
17.Available Attendance Forms:	
In-person, two hours theoretical and two hours practical.	
18.Number of Credit Hours (Total) / Number of Units (Total)	
120	
19. Course administrator's name (mention all, if more than one name)	
Name: Jabar Qasim Fahad Email:	
20. Course Objectives	
Course Objectives	• Studying the foundations of electricity technology, electric motors, and various electrical transformers, the theory of their work, methods of operating them, and how to repair faults and perform maintenance on them. • Providing students with the necessary skills to maintain medical devices.
21. Teaching and Learning Strategies	
Strategy	• Lecturing strategy • Discussion strategy • Brainstorming strategy • Problem solving strategy
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st , 2nd	8	Understand the basics of the topic and learn about the types Transformers used in medical devices	Transformers: single phase transformer and construction	Lectures Theoretical and practical examples, solutions and homework	
3rd	4	The student learns theory Operation of transformers under load and short circuit condition	Theory of operation , no load and short circuit test .	Lectures Theoretical and practical examples, solutions and homework	
4th , 5th	8	The student gets to know Equivalent circuit for transformers and auto- transformers	Equivalent circuit, auto– transformers, instrument transformers .	Lectures Theoretical and practical examples, solutions and homework	
6th , 7th	8	Learn about three-phase transformers, their installation and ways to connect them	Three phase transformers , constructions methods of connection	Lectures Theoretical and practical examples, solutions and homework	
8th , 9th	8	Learn about the principles of electromechanical energy and work theory	Electromechanical energy conversion principles , relay operation .	Lectures Theoretical and practical examples, solutions and homework	
10^{th} , 11^{th} , 12^{th}	12	The student learns about direct current machines , e.m.f equation, torque, equivalent circuit, and excitation methods	D.C machines : e.m.f and torque equation , equivalent circuit , methods of excitation , generator characteristics	Lectures Theoretical and practical examples, solutions and homework	
13^{th} , 14^{th} , 15^{th}	12	The student studies the characteristics of engines and methods of testing and calculating losses and efficiency	Motor characteristics , testing , calculation of losses and efficiency .	Lectures Theoretical and practical examples, solutions and homework	
16^{th} , 17^{th} , 8^{th}	12	The student learns about induction motors, equivalent circuits, the basic	Induction machines : equivalent circuit , basic	Lectures Theoretical and practical examples,	

		equation, and a simplified analytical test	equation , simple analysis testing .	solutions and homework	
19th , 20th , 21st	12	The student learns about single-phase motors, the working principle of a short capacitor, running Capacitor and polar motors Shaded	Single phase induction motor , methods of starting , siplitphase , capacitor short , capacitor run and shaded pole motors	Lectures Theoretical and practical examples, solutions and homework	
22nd , 23rd	8	Synchronous machines, motors and generators	Synchronous machines , generators and motors , equivalent circuit , basic equation	Lectures Theoretical and practical examples, solutions and homework	
24th , 25th	8	Study of special engines	Special machines : Reluctance motor , hysteresis motor , linear motor , stepper motor , dray cup type motor , servo motor , etc …	Lectures Theoretical and practical examples, solutions and homework	
26th , 27th	8	Identify the types of keys, control and others	Control switches : pilot switches , push bottoms , limits	Lectures Theoretical and practical examples, solutions and homework	
28th	4	Machine control equipment	Switches , flost switches , contactors , pressure switches .	Lectures Theoretical and practical examples, solutions and homework	
29th , 30th	8	High voltage circuits	High voltage circuits	Lectures Theoretical and practical examples, solutions and homework	

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Textbook of Electrical Technology by B.L. Theraja.

	• Fundamentals of Electric Machines A Primer with MATLAB
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.electricaltechnology.org/

Course Description Form

13.	Course Name:
	Microprocessor & Microcomputer
14.	Course Code:
	Muo243002
15.	Semester / Year:
	2024-2025
16.	Description Preparation Date:
	1/10/2024
17.Available Attendance Forms:	
	class
18.Number of Credit Hours (Total) / Number of Units (Total)	
	150 hours
19.	Course administrator's name (mention all, if more than one name)
	Name: Nawar Saeed Email:
20.	Course Objectives

Course Objectives	• Training the student on the basics of logical circuits used in electronic computers and how th work • Building logic circuits • Learn about microcomputers, their parts, programming or applications.

21. Teaching and Learning Strategies

Strategy	
	discussion sessions practical experiments visual aids

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st , 2nd	10	Part 1 : Introduction to microprocessor and microcomputer.	general systems and specialized tools in general surgery.	Lecture + practical	Oral test

4th , 5th , 6th	15	Part 2 : Semiconductor memories (ROMs & RAMs)	specialized systems and Inst.	Lecture + practical	Daily test
7th , 8th , 9th	10	Auxiliary (backing) memories (magnetic tape , magnetic disk , etc) ..	Ophthalmic microsurgical Inst.	Lecture + practical	Daily test
10th , 11th , 12th	10	Microprocessor architecture	Open heart & cardiovascular.	Lecture + practical	Daily test
13th , 14th , 15th	10	Bus signal timing & I/O timing .	Kidney machine.	Lecture + practical	Daily test
16th , 17th , 18th	10	Microprocessor interfacing ..	Surgical diathermy.	Lecture + practical	First term exam
19th , 20th , 21st	15	Instruction sets & addressing modes .	Artificial organs – internal & external.	Lecture + practical	Test
22nd , 23rd	15	Digital I/O (parallel I/O & serial I/O) .	Dental system.	Lecture + practical	Test
24th , 25th , 26th	10	Analogue I/O(interfacing ADC & DAC to microprocessor)..	Gynecology Inst.	Lecture + practical	Test
27th , 28th	10	Standard buses (serial & parallel buses) ..	Anesthetic units.	Lecture + practical	Second term exam
29th , 30th	10	Some practical microprocessor ..	Intensive care units	Lecture + practical	Final exam

23. Course Evaluation

Theoretical part, first semester (theoretical 10 + practical 1) The second semester (theoretical 10 + practical 10) Year works (theoretical 5 + practical 5) Final exam (theoretical 40 + practical 10)

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	addition to the lectures of the subject professor
Main references (sources)	introduction to microprocessor and
	microcomputer science
Recommended books and references (scientific journals, reports...)	Microprocessor
Electronic References, Websites	Virtual library and Internet sites

Course Description Form

13. Course Name:	
Medical Communication Systems	
14. Course Code:	
MU0243004	
15. Semester / Year:	
2024-2025	
16. Description Preparation Date:	
2024/10/16	
17. Available Attendance Forms:	
Weekly: 2 practical hours and 2 theoretical hours	
18. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours and 6 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hasan Omer Email:	
20.Course Objectives	
Course Objectives	The medical communications systems curriculum aims to introduce the student to the basics and concepts of medical communications and processes that take place on it, design and analysis.
21. Teaching and Learning Strategies	
Strategy	✓Providing students with the basics and additional topics relate to the previous skills learning outcomes To solve practical problems. ✓Solution of a group of practical examples by academic staff.
	✓Students participate during the lecture by solving some practi problems.
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1^{st}	4	Student understanding lecture	General review in electrostatic.	Theoretical practical lecture	Daily and monthly testing
2^{nd}	4	Student understanding lecture	Gauss's law.	Theoretical practical lecture	Daily and monthly testing
3^{th},4^{th}	8	Student understanding lecture	Fourier transform.	Theoretical practical lecture	Daily and monthly testing
5^{th},6^{th}	8	Student understanding lecture	Signals & system.	Theoretical practical lecture	Daily and monthly testing
7^{th},8^{th}	8	Student understanding lecture	Periodic, non-periodic signals.	Theoretical practical lecture	Daily and monthly testing
9^{th},10^{th}	8	Student understanding lecture.	AM & FM systems.	Theoretical practical lecture	Daily and monthly testing
11^{th},12^{th}, 13^{th}	12	Student understanding lecture	Sampling, PAM, PWM, PPM, PCM.	Theoretical practical lecture	Daily and monthly testing
14^{th},15^{th}, 16^{th}	12	Student understanding lecture.	Digital modulation (ASK, FSK, PSK).	Theoretical practical lecture	Daily and monthly testing
17^{th},18^{th}	8	Student understanding lecture	Noise in analogue & digital systems.	Theoretical practical lecture	Daily and monthly testing
19^{rd}	4	Student understanding lecture.	Steady magnetic field.	Theoretical practical lecture	Daily and monthly testing
20^{th},21^{th}	8	Student understanding lecture	Time – varying magnetic field .	Theoretical practical lecture	Daily and monthly testing

22^{th}	4	Student understanding lecture.	Uniform plane waves.	Theoretical practical lecture	Daily and monthly testing
23^{th},24^{th}	8	Student understanding lecture	Rectangular wave– guides	Theoretical practical lecture	Daily and monthly testing
25^{th},26^{th}	8	Student understanding lecture.	Microwave passive devices.	Theoretical practical lecture	Daily and monthly testing
27^{th},28^{th}	8	Student understanding lecture.	Microwave generators.	Theoretical practical lecture	Daily and monthly testing
29^{th},30^{th}	8	Student Understanding lecture	Antennas.	Theoretical practical lecture	Daily and monthly testing

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Schaum's Outline of Analog and Digital Communication
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Global research on medical communication systems from the Internet
Electronic References, Websites	

Course Description Form

13. Course Name:	
Medical Communication Systems	
14. Course Code:	
MU0243004	
15. Semester / Year:	
2024-2025	
16. Description Preparation Date:	
2024/10/16	
17. Available Attendance Forms:	
Weekly: 2 practical hours and 2 theoretical hours	
18. Number of Credit Hours (Total) / Number of Units (Total)	
120 hours and 6 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hasan Omer Email:	
20.Course Objectives	
Course Objectives	The medical communications systems curriculum aims to introduce the student to the basics and concepts of medical communications and processes that take place on it, design and analysis.
21. Teaching and Learning Strategies	
Strategy	✓Providing students with the basics and additional topics relate to the previous skills learning outcomes To solve practical problems. ✓Solution of a group of practical examples by academic staff.
	✓Students participate during the lecture by solving some practi problems.
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1^{st}	4	Student understanding lecture	General review in electrostatic.	Theoretical practical lecture	Daily and monthly testing
2^{nd}	4	Student understanding lecture	Gauss's law.	Theoretical practical lecture	Daily and monthly testing
3^{th},4^{th}	8	Student understanding lecture	Fourier transform.	Theoretical practical lecture	Daily and monthly testing
5^{th},6^{th}	8	Student understanding lecture	Signals & system.	Theoretical practical lecture	Daily and monthly testing
7^{th},8^{th}	8	Student understanding lecture	Periodic, non-periodic signals.	Theoretical practical lecture	Daily and monthly testing
9^{th},10^{th}	8	Student understanding lecture.	AM & FM systems.	Theoretical practical lecture	Daily and monthly testing
11^{th},12^{th}, 13^{th}	12	Student understanding lecture	Sampling, PAM, PWM, PPM, PCM.	Theoretical practical lecture	Daily and monthly testing
14^{th},15^{th}, 16^{th}	12	Student understanding lecture.	Digital modulation (ASK, FSK, PSK).	Theoretical practical lecture	Daily and monthly testing
17^{th},18^{th}	8	Student understanding lecture	Noise in analogue & digital systems.	Theoretical practical lecture	Daily and monthly testing
19^{rd}	4	Student understanding lecture.	Steady magnetic field.	Theoretical practical lecture	Daily and monthly testing
20^{th},21^{th}	8	Student understanding lecture	Time – varying magnetic field .	Theoretical practical lecture	Daily and monthly testing

22^{th}	4	Student understanding lecture.	Uniform plane waves.	Theoretical practical lecture	Daily and monthly testing
23^{th},24^{th}	8	Student understanding lecture	Rectangular wave– guides	Theoretical practical lecture	Daily and monthly testing
25^{th},26^{th}	8	Student understanding lecture.	Microwave passive devices.	Theoretical practical lecture	Daily and monthly testing
27^{th},28^{th}	8	Student understanding lecture.	Microwave generators.	Theoretical practical lecture	Daily and monthly testing
29^{th},30^{th}	8	Student Understanding lecture	Antennas.	Theoretical practical lecture	Daily and monthly testing

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Schaum's Outline of Analog and Digital Communication
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Global research on medical communication systems from the Internet
Electronic References, Websites	

	المراجع الإلكترونية ، مواقع الانترنيت

Course Description Form

13. Course Name:	
Medical Instrumentation 2	
14. Course Code:	
MIT	
15. Semester / Year:	
Annual	
16. Description Preparation Date:	
2024- 10-15	
17.Available Attendance Forms:	
In-person, two hours theoretical and two hours practical.	
18.Number of Credit Hours (Total) / Number of Units (Total)	
120	
19. Course administrator's name (mention all, if more than one name)	
Name: Ameer Jawad Email:	
20. Course Objectives	
Course Objectives	Studying of medical devices in terms of their working principle, internal electronic components, design methods, designed stages, and the possibility of developing them, in addition to the laboratory aspect in terms of identifying the physical component of the medical device and methods of operating and maintaining it..
21. Teaching and Learning Strategies	
Strategy	• Lecturing strategy • Discussion strategy • Brainstorming strategy • Problem solving strategy
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st-3rd	15	Understand the basics of the subject and identify the types of medical signals and the ECG signal.	Fundamentals of biomedical instrumentation, electrodes and Cardiac function	Lectures Theoretical and practical and homework	ly exams at the end of ach lecture
4th-6th	15	Student understanding of the lecture	Surgical scope .	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
7th-9th	15	Student understanding of the lecture	Audiological system.	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
10th-12th	15	Student understanding of the lecture	Ophthalmic system	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
13th-14th	10	Student understanding of the lecture	Ultrasound machine	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
15th-16th	10	Student understanding of the lecture	X-ray machine	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
17th-18th	10	Student understanding of the lecture	MRI	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
19th-20th	10	Student understanding of the lecture	Thermal Imaging	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
21th-23h	15	Student understanding of the lecture	Pulmonary functional system	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
24th-26th	15	Student understanding of the lecture	Pathological unit	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
27th-28th	10	Student understanding of the lecture	Therapeutic diathermy	Lectures Theoretical and practical and homework	ly exams at end of ach lecture
29th-30th	10	Student understanding of the lecture	Coronary care unit	Lectures Theoretical and practical and homework	ly exams at end of ach lecture

23. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc	
24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• Biomedical Engineering Handbook
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	/

Course Description Form

13. Course Name:
Computer Applications 3
14. Course Code:
MU0243008
15. Semester / Year:
2024/2025 (yearly)
16. Description Preparation Date:
22/10/2024
17.Available Attendance Forms:
In class
18.Number of Credit Hours (Total) / Number of Units (Total)
(120 hours)/ (4 units)
19. Course administrator's name (mention all, if more than one name)
Name: Nawar Saeed Email: _____

20. Course Objectives	
Course Objectives	
21. Teaching and Learning Strategies	

Strategy	Introduce students to the basics and capabilities of the LabVIEW environment. •Develop the ability to design graphical user interfaces (GUIs.) •Learn how to collect and process data from devices and sensors in real time. •Applying concepts of automatic control and measurements in live projects. •Develop LabVIEW applications applicable to dat analysis and systems management. - Gain practical experience in light of interact computing projects.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st,1	30 theoretical + 30 practical	Student understanding of the lecture	Introduces the LabVIEW environment including windows, menus,and tools.	Theoretical and practical lecture	Daily and weekly testing
16st, 30th	30 theoretical + 30 practical	Student understanding of the lecture	Creating and using LabVIEW projects, The LabVIEW front panel and block diagram Searching for controls, VIs,	Theoretical and practical lecture	Daily and weekly testing

			and functions.		

23. Course Evaluation	
Daily evaluation - quarterly evaluation - practical evaluation - final evaluation - presentation - daily attendance	
24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Using structures like the While Loop and For Loop, Adding software timing to your code, Sharing data between loop iterations, Plotting data to a waveform chart. Creating and using array controls and indicators, Creating and using cluster controls and indicators, Using type definitions to improve reuse of data structures in applications. Creating and using Case structures, Creating and using Event structures, Creating and using Case structures, Creating and using Event structures, using a VI as a subVI, Creating subVIs from an existing VI. High-level and low-level file I/O functions available in LabVIEW, Implementing File I/O functions to read and write data to files. Techniques for sequential programming, Using state programming, Implementing a state machine design pattern.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	

Electronic References, Websites	

Course Description Form

13.	Course Name:
	Medical Electronics Systems
14.	Course Code:
15.	Semester / Year:
	2024/2025
16.	Description Preparation Date:
	16/9/2024
17. Available Attendance Forms:	
	At class
18. Number of Credit Hours (Total) / Number of Units (Total)	
	60 heoretical hours and 60 practical hours / 6 units
19.Course administrator's name (mention all, if more than one name)	
Name: Noor Aldeen Reyadh Email:	
20.Course Objectives	
Course Objectives	• This course aims to prepare engineers capable of dealing with high-regulated power supply electronic components • Develop their skills in design Regulated power supply used in medical devices .

	• Have a good information in operation amplifier and their applications and an idea about active filters and their modes.

21.Teaching and Learning Strategies

Strategy	• Lectures • discussion sessions • practical experiments • visual aids.

22.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2+2	The student understands the lesson	Introduction to Electronic Systems.	Theoretical lecture ractical laboratory	Pre-test Post-test
3-2	4+4	student understands the lesson	Regulated power supply: Transformer .	Theoretical lecture ractical laboratory	Pre-test Post-test
5-4	4+4	student understands the lesson	Regulated power supply: Rectifier.	Theoretical lecture ractical laboratory	Pre-test Post-test
8-6	6+6	student understands the lesson	Regulated power supply: filtering.	Theoretical lecture ractical laboratory	Pre-test Post-test
10-9	4+4	student understands the lesson	Regulated power supply: Zener diodes .	Theoretical lecture ractical laboratory	Pre-test Post-test
12-11	4+4	student understands the lesson	Operation Amplifier .	Theoretical lecture ractical laboratory	Pre-test Post-test
15-13	6+6	student understands the lesson	Operation Amplifier Applications 1	Theoretical lecture ractical laboratory	Pre-test Post-test
18-16	6+6	student understands the lesson	Operation Amplifier Applications 2.	Theoretical lecture ractical laboratory	Pre-test Post-test
21-19	6+6	student understands the lesson	Active Filters	Theoretical lecture ractical laboratory	Pre-test Post-test

23-22	4+4	student understands the lesson	Active Filters LPF & HPF.	Theoretical lecture ractical laboratory	Pre-test Post-test
26-24	6+6	student understands the lesson	Active Filters BPF & BSF	Theoretical lecture ractical laboratory	Pre-test Post-test
28-27	4+4	student understands the lesson	Analog to Digital Conversion (ADC) .	Theoretical lecture ractical laboratory	Pre-test Post-test
30-29	4+4	student understands the lesson	Digital to Analog Conversion (DAC) .	Theoretical lecture ractical laboratory	Pre-test Post-test

23.Course Evaluation

Theoretical part, first semester (theoretical 10 + practical 1)
The second semester (theoretical 10 + practical 10) Year works (theoretical 5 + practical 5)

Final exam (theoretical 40 + practical 10)

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical electronic Systems Lander
Main references (sources)	Practical Medical electronic Systems
Recommended books and references (scientific journals, reports...)	Medical electronic Systems
Electronic References, Websites	Practical Medical electronic Systems

Course Description Form

1.Course Name:
English Language 3
2.Course Code:
MU02xxxxxx
3.Semester / Year:
Annual / 2024
4.Description Preparation Date:
05/01/2024
5.Available Attendance Forms:
Weekly (Theoretical)
6.Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 30
7.Course administrator's name (mention all, if more than one name)
Name: Syran Najem Email: _____
8.Course Objectives

Course Objectives	• Empowering students to understand how to with the English language and develop their s linguistic evaluation skills through the feedb provided by tests. • Assessing students' ability to recognize English language and its basic skills. • Familiarizing students with all the fundame topics. • Enhancing students' critical thinking based their understanding of the importance of English language in communication expression. • Engaging students in discussions with their p on topics related to this subject. • Encouraging students to propose suit suggestions for developing the topics cover this subject.

9.Teaching and Learning Strategies

Element	Content
a. Cognitive Objectives	Recognize the meaning and structure of the target language (English) in addition to mastering its pronunciation at the introductory level. Classify the sources of English vocabulary. Differentiate between English and other languages, such as the native language. Analyze English language topics. Deal with English and use it as a language of communication in daily life situations.
b. Skills Objectives	Introduce the student to the English language and organize language learning in it as a foreign language. Recognize the English language and its basic skills. Deal with the English language and develop self-assessment language skills.
c. Teaching and Learning Methods	Lectures. Visual aids (data show). Workshops. Seminars.
d. Assessment Methods	Daily assessment. Semester assessment. Practical assessment. Final assessment. Presentation. Daily attendance. Weekly reports.

e. Attitudinal and Valuation Objectives	Thinking skill according to the student's understanding of the importance of the English language in communication and delivery. Observation and perception. Imagination and contemplation. The student conveys his ideas and questions and expresses what he wants in a clear and correct way.
f. General and Transferable Skills (Other skills related to employability and personal development)	• Explain the rules on the board and provide opportunities for continuous learning for students and encourage them to keep up. • Use the forms used for explanation for the purpose of the student acquiring language skills and different thinking skills. Use data show for explanation. • Empower students to benefit from foreign resources according to their specialization for the purpose of study and scientific research.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	"Theoretical"(1)	The student understands the lesson	"Introduction - Prescribed Textbooks - Units - Conducting a Written and Oral Test to Assess Students' Levels	"Theoretical Lecture"	"Daily and Monthly Assessments "
2	"Theoretical"(1)	The student understands the lesson	Auxiliary verbs	"Theoretical Lecture"	"Daily and Monthly Assessments "
3	"Theoretical"(1)	The student understands the lesson	Naming the tenses	"Theoretical Lecture"	Daily and Monthly Assessments
4	"Theoretical"(1)	The student understands the lesson	Questions and negatives	"Theoretical Lecture"	Daily and Monthly Assessments

5	"Theoretical"(1)	The student understands the lesson	Short answers	"Theoretical Lecture"	"Daily and Monthly Assessments "
6	"Theoretical"(1)	The student understands the lesson	Present tense	"Theoretical Lecture"	Daily and Monthly Assessments
7	"Theoretical"(1)	The student understands the lesson	Present continuous	"Theoretical Lecture"	Daily and Monthly Assessments
8	"Theoretical"(1)	The student understands the lesson	Simple or continuous	"Theoretical Lecture"	Daily and Monthly Assessments
9		The student understands the lesson	Present passive	"Theoretical Lecture"	Daily and Monthly Assessments
10	"Theoretical"(1)	The student understands the lesson	Past simple and continuous	"Theoretical Lecture"	Daily and Monthly Assessments "
11	"Theoretical"(1)	The student understands the lesson	Past simple and past perfect	"Theoretical Lecture"	"Daily and Monthly Assessments

12	"Theoretical"(1)	The student understands the lesson	Past passive	"Theoretical Lecture"	"Daily and Monthly Assessments "
13	"Theoretical"(1)	The student understands the lesson	Obligation	"Theoretical Lecture"	"Daily and Monthly Assessments "
14	"Theoretical"(1)	The student understands the lesson	Permission	"Theoretical Lecture"	"Daily and Monthly Assessments "
15	"Theoretical"(1)	The student understands the lesson	Comprehensive reading	"Theoretical Lecture"	"Daily and Monthly Assessments "
16	"Theoretical"(1)	The student understands the lesson	Comprehensive reading	"Theoretical Lecture"	"Daily and Monthly Assessments "
17	"Theoretical"(1)	The student understands the lesson	future form	"Theoretical Lecture"	"Daily and Monthly Assessments "
18	"Theoretical"(1)	The student understands the lesson	Present continuous	"Theoretical Lecture"	"Daily and Monthly Assessments "

19	"Theoretical"(1)	The student understands the lesson	Seminar 1	"Theoretical Lecture"	"Daily and Monthly Assessments "
20	"Theoretical"(1)	The student understands the lesson	Discussion	"Theoretical Lecture"	"Daily and Monthly Assessments "
21	"Theoretical"(1)	The student understands the lesson	Seminar 2	"Theoretical Lecture"	"Daily and Monthly Assessments "
22	"Theoretical"(1)	The student understands the lesson	Questions with like	"Theoretical Lecture"	"Daily and Monthly Assessments "
23	"Theoretical"(1)	The student understands the lesson	Verb patterns	"Theoretical Lecture"	"Daily and Monthly Assessments "
24	"Theoretical"(1)	The student understands the lesson	Comprehensive reading	"Theoretical Lecture"	"Daily and Monthly Assessments "
25	"Theoretical"(1)	The student understands the lesson	Seminar 3	"Theoretical Lecture"	"Daily and Monthly Assessments "

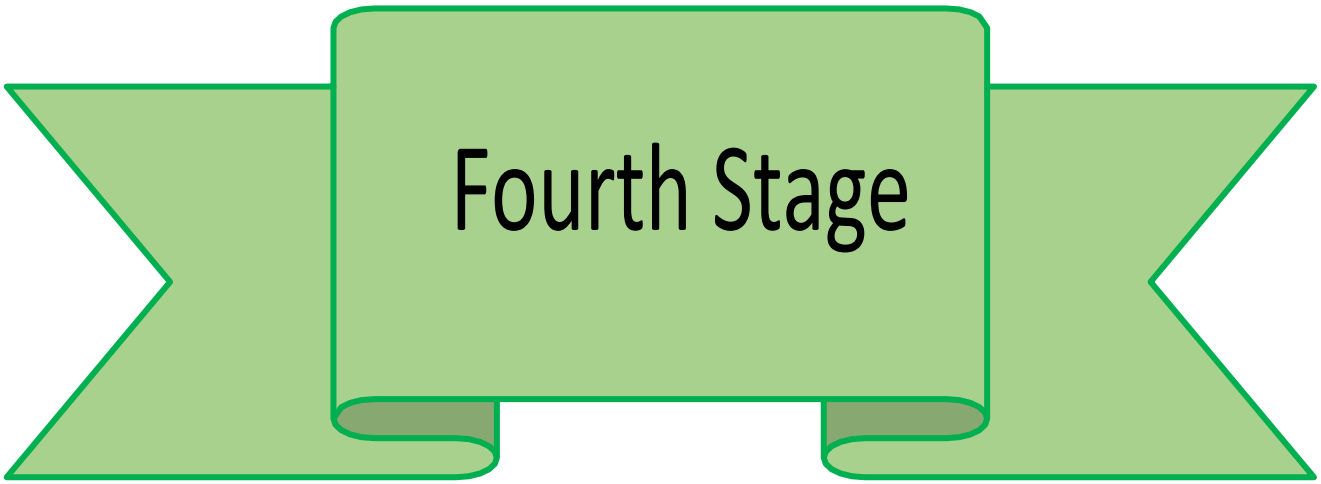
26	"Theoretical"(1)	The student understands the lesson	Speaking topics	"Theoretical Lecture"	Daily and Monthly Assessments
27	"Theoretical"(1)	The student understands the lesson	Speaking topics	"Theoretical Lecture"	Daily and Monthly Assessments
28	"Theoretical"(1)	The student understands the lesson	Listening test	"Theoretical Lecture"	Daily and Monthly Assessments
29	"Theoretical"(1)	The student understands the lesson	Writing	"Theoretical Lecture"	Daily and Monthly Assessments
30	"Theoretical"(1)	The student understands the lesson	Writing	"Theoretical Lecture"	Daily and Monthly Assessments

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	w Headway for intermediate level
Recommended books and references (scientific journals, reports...)	IELTS Books
Electronic References, Websites	


Fourth Stage

- ☒ Recognize the value of integrated control and system design
- ☒ Understand key ideas and concepts: dynamics and feedback
- ☒ Know relevant mathematical theory
- ☒ Be able to model and control simple control problems.
- ☒ Recognize the effect of the three term PID Controller on the first and second order systems.
- ☒ Be aware of computational tools (e.g. MATLAB)
- ☒ Appreciate the need for control in almost all branches of engineering systems design Understand and operation.

21. Teaching and Learning Strategies

A- Knowledge and Understanding

1. Classify Control systems based on their models.
2. Writing the differential equation describing both mechanical and electrical systems based on available physical laws (Modelling).
3. Using the Laplace transformation to convert the model from the time domain to the frequency domain, and using the Laplace inverse to solve the system back in time domain.
4. Using the Transfer Function definition to build the blocks representing any system.
5. Using the reduction rules to find the overall system transfer function for the system.
6. Evaluating the dynamic time response for any system to impulse, step and cosine input signals. Evaluating the dynamic performance characteristics for the system from its dynamic time response.
7. Representing the system by state space models. Convert from transfer function to state space and vice versa.
8. Checking the system stability based on the location of poles and zeroes on the S-Plane and by using the Routh-Hurwitz Stability Criterion.
9. Using the PID control algorithm to improve the system stability and other performance characteristics

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6		Introduction to Control Systems	Powerpoint + Openboard Lectures +Lab	Q&A
3-7	14		Modeling, transfer function, solving ODE, and Laplace transformation, solve the system in time domain	Powerpoint + Openboard Lectures+LAB	Quiz
8-10	6		Block diagram reduction	Powerpoint + Openboard	Q&A
11	4		Exam-1		
12-13	8		Steady State Error	Powerpoint + Openboard Lectures	Quiz
14-15	8		MID EXAM		
16-18	16		Time Domain Analysis Dynamic Characteristics	Powerpoint + Openboard Lectures+LAB	
19	4		PID Controllers	Powerpoint + Openboard Lectures	
20-22	12		Stability Analysis and Routh-Hurwitz Criterion	Powerpoint + Openboard Lectures	in Class Tutorials
23-25	12		Root Locus Method	Powerpoint + Openboard Lectures	
26	4		Common Mid Exam		
27-29	12		Review Course Material		ving Different Problems

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	Modern Control Engineering, Fifth Edition, Ogata,2010
Recommended books and references (scientific journals, reports...)	Modern Control Systems, Richard and Bishop,2011
Electronic References, Websites	Pdf handouts uploaded to University Website (more than 35 file).

Course Description Form

Medical Laser Systems

13. Course Name: Medical Laser Systems
14. Course Code:
15. Semester / Year: Annual Course (2 semesters) 2024-2025
16. Description Preparation Date: 1/10/2024
17.Available Attendance Forms: Classroom attendance
18.Number of Credit Hours (Total) / Number of Units (Total) 120hrs/6units
Semester-I/ 15Week+ Semester II/15 Week 2 hrs Theoritical+2hrs Practical/Week Total hrs/120 hrs Units/Semester (3) Total units/ 6
19. Course administrator's name (mention all, if more than one name)
Name: Rabab Razak Email:
20. Course Objectives
- The general objectives of the course are to develop the student's competence in 1. Acquire factual knowledge (terminology, classifications, methods) in the field of medical laser systems 2. Learn the basic principles, generalizations or theories related to the basic field of medical laser systems 2. 3. Learn how to apply the background in physics and mathematics and improve the solution of technical problems 4. Develop the skill of communicating technical solutions orally and in writing
21. Teaching and Learning Strategies

A- Knowledge and Understanding

1. To enable the student to gain knowledge and understanding of the theoretical principles of medical laser systems and all other systems associated with them.
2. To understand the ideological philosophy of medical laser systems and their applications.
3. To understand the knowledge of all systems used in all fields, especially the medical field and in their applications.
4. At the end of the year the student should be able to demonstrate knowledge and understanding of the concepts of medical laser systems

Prof. Dr. Alaa Hussein Ali
Alaa.Hussein.Ali@uomus.edu.iq

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	4		Laser generation	Powerpoint + Openboard Lectures +Lab	Q&A
3-7	8		Types of laser. Light and light propagation in glass fiber.	Powerpoint + Openboard Lectures+LAB	Quiz
8-10	6		Optical fiber wave guide, band width distance product, dispersion and pulse spreeding, maximum allowable data rate, fiber power losses.	Powerpoint + Openboard	Q&A
11	2		Exam-1		
12-13	4		ransmitter devise and circuits	Powerpoint + Openboard Lectures	Quiz
14-15	4		MID EXAM		
16-18	6		Injection lasers, modulators.	Powerpoint + Openboard Lectures+LAB	
19	2		Receiver devices and circuits photo diode light detector.	Powerpoint + Openboard Lectures	
20-22	6		Avalanche photo diode (APD), receiver circuits.	Powerpoint + Openboard Lectures	in Class Tutorials
23-25	6		Transmission technology , fiber technology , connectors	Powerpoint + Openboard Lectures	
26	2		Splices, couplers.		

27-29	6		Laser hazards, the standard level for a safe working environment, lab – safety		ving Different Problems

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	None
Main references (sources)	Photonics Linear and nonlinear interactions between laser light and matter By Ralf Menzel, Springer
Recommended books and references (scientific journals, reports...)	Understanding Laser Technology C. Breck Heitz
Electronic References, Websites	Pdf handouts uploaded to University Website

Course Description Form

13. Course Name:	
Engineering of Radiation Instrument	
14. Course Code:	
15. Semester / Year:	
2023/2024	
16. Description Preparation Date:	
1/5/2024	
17.Available Attendance Forms:	
At class	
18.Number of Credit Hours (Total) / Number of Units (Total)	
4 hr/ 6 unit	
19. Course administrator's name (mention all, if more than one name)	
Name: Al-Hawraa Alaa Email:	
20. Course Objectives	
Course Objectives	• Understanding atomic structure and nuclear radiation and their concepts. • Studying the types and basic characteristics of nuclear radiation and its effects on matter. • Identifying radiation detection devices and their applications. • Studying radiation protection and safety concepts in nuclear operations. • Understanding the principles of internal nuclear therapy. • Studying the production of X-rays and their clinical applications. • Studying dose distribution and radiation scattering analysis. • Studying concepts of radiation therapy planning.
21. Teaching and Learning Strategies	
Strategy	Lectures, discussion sessions, practical experiments, and visual aids.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st and 2nd	4theoretical + 4 practical	The student understands the lesson	Atomic structure and atomic radiation	Theoretical lecture Practical laboratory	Pre-test Post-test
3rd and 4th	4 theoretical + 4 practical	The student understands the lesson	The nuclear and nuclear radiation	Theoretical lecture Practical laboratory	Pre-test Post-test
5th and 6th	4 theoretical + 4 practical	The student understands the lesson	Interaction of radiation with matter.	Theoretical lecture Practical laboratory	Pre-test Post-test
7th, 8th, and 9th	4 theoretical + 4 practical	The student understands the lesson	Radiation detection & ring of radiation lengine detectors.	Theoretical lecture Practical laboratory	Pre-test Post-test
10th, 11th, and 12th	4 theoretical + 4 practical	The student understands the lesson	Engineering of radiation dosimetry and dosimeters.	Theoretical lecture Practical laboratory	Pre-test Post-test
13th and 14th	4 theoretical + 4 practical	The student understands the lesson	Radiation protection	Theoretical lecture Practical laboratory	Pre-test Post-test
15th and 16th	4 theoretical + 4 practical	The student understands the lesson	Engineering of body scanners.	Theoretical lecture Practical laboratory	Pre-test Post-test
17th and 18th	4 theoretical + 4 practical	The student understands the lesson	Production of X – rays.	Theoretical lecture Practical laboratory	Pre-test Post-test
19th and 20th	4 theoretical + 4 practical	The student understands the lesson	Clinical radiation generators	Theoretical lecture Practical laboratory	Pre-test Post-test
21st	4 theoretical + 4 practical	The student understands the lesson	Dose distribution and scatter analysis.	Theoretical lecture Practical laboratory	Pre-test Post-test
22nd	4 theoretical + 4 practical	The student understands the lesson	A system of dosimetric calculations	Theoretical lecture Practical laboratory	Pre-test Post-test
23rd	4 theoretical	The student understands the lesson	Treatment planning	Theoretical lecture	Pre-test Post-test

	+ 4 practical			Practical laboratory	
24th	4 theoretical + 4 practical	The student understands the lesson	Engineering of electron beam therapy.	Theoretical lecture Practical laboratory	Pre-test Post-test
25th and 26th	4 theoretical + 4 practical	The student understands the lesson	Brachy therapy	Theoretical lecture Practical laboratory	Pre-test Post-test
27th and 28th	4 theoretical + 4 practical	The student understands the lesson	Atomic structure and atomic radiation	Theoretical lecture Practical laboratory	Pre-test Post-test
th 29 and 30th	4 theoretical + 4 practical	The student understands the lesson	The nuclear and nuclear radiation	Theoretical lecture Practical laboratory	Pre-test Post-test

23. Course Evaluation

Theoretical part, first semester (theoretical 10 + practical 10)
The second semester (theoretical 10 + practical 10)
Year works (theoretical 5 + practical 5)
Final exam (theoretical 40 + practical 10)

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Physics for Scientists and Engineers with Modern Physics, Eighth Edition, Raymond A. Serway and John W. Jewett, Jr.
Recommended books and references (scientific journals, reports...)	The physics of radiation therapy. , Khan, F.M. and Gibbons, Third Edition, Faiz M. Khan
Electronic References, Websites	

Course Description Form

13. Course Name:	
Project management	
14. Course Code:	
MU0244006	
15. Semester / Year:	
2024-2025	
16. Description Preparation Date:	
14\10\2024	
17.Available Attendance Forms:	
At Class	
18.Number of Credit Hours (Total) / Number of Units (Total) 60/4	
60 hour\ 4 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Rabab Razak Email:	
20. Course Objectives	
Course Objectives	• **Providing students with concepts related to administrative activities practiced by the organizat and their applications** • **Introducing the student to the principles and eleme of project management strategies in terms planning, scheduling, and controlling activities** • **Introducing the student to quantitative methods decision-making in all administrative activities functions of the project** • **Introducing the student to ways to represent project with a network diagram and calculate the t implementation time and the associated normal reduced costs**

	• **Providing the student with knowledge of the conc of replacing machines, material handling syste and warehouse control in projects** • **Introducing the student to time managem techniques and their implications in pro management** • **Introducing the student to the concept of work st and the method of setting standard times** • **Introducing the student to the modern experience Japanese administration compared to Ameri (Western in general) administration.**

21. Teaching and Learning Strategies

Strategy	• Lectures to introduce basic concepts and theories. • Case studies and practical examples to illustrate application in real-world scenarios. • Group discussions and activities to promote active learning and collaboration. • Assignments and projects to apply techniques and tools learned. • Continuous feedback: providing regular feedback to support students progress and understanding.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**The student understands the lesson**	**Introduction to project management objective and trad offs . Cost – schedule – performance**	**Theoretical lecture**	**Pre-Test**
2	2	**The student understands the lesson**	**Planning and control in projects Planning Scheduling Controllin**	**Theoretical lecture**	**Pre-Test**
3	2	**The student understands the lesson**	**Scheduling methods**	**Theoretical lecture**	**Pre-Test**
4	2	**The student understands the lesson**	**Gant chart**	**Theoretical lecture**	**Pre-Test Post-Test**

5	2	**The student understands the lesson**	**Networks method**	**Theoretical lecture**	**Pre-Test**
6	2	**The student understands the lesson**	**Constant – time network**	**Theoretical lecture**	**Pre-Test**
7-8	2	**The student understands the lesson**	**PERT network**	**Theoretical lecture**	**Pre-Test Post-Test**
9-10	2	**The student understands the lesson**	**Critical path method**	**Theoretical lecture**	**Pre-Test Post-Test**
11	2	**The student understands the lesson**	**Precedence diagramming metho**	**Theoretical lecture**	**Pre-Test**
12-13	2	**The student understands the lesson**	**Project phases: choice of projec location**	**Theoretical lecture**	**Pre-Test**
14	2	**The student understands the lesson**	**Process design**	**Theoretical lecture**	**Pre-Test**
15	2	**The student understands the lesson**	**Choice of technology**	**Theoretical lecture**	**Pre-Test**
16-17	2	**The student understands the lesson**	**Financial analysis- Machine replacement**	**Theoretical lecture**	**Pre-Test Post-Test**
18	2	**The student understands the lesson**	**Managing the work force in project**	**Theoretical lecture**	**Pre-Test**
19	2	**The student understands the lesson**	**Japan's work – force manageme**	**Theoretical lecture**	**Pre-Test**
20	2	**The student understands the lesson**	**New approach to evaluation performance**	**Theoretical lecture**	**Pre-Test**
21	2	**The student understands the lesson**	**New approach to evaluation performance**	**Theoretical lecture**	**Pre-Test**
22	2	**The student understands the lesson**	**Concepts of MRP system**	**Theoretical lecture**	**Pre-Test**
23	2	**The student understands the lesson**	**MRP versus just in time system**	**Theoretical lecture**	**Pre-Test**
24-25	2	**The student understands the lesson**	**Activities in project: Coordination of project activitie Activities breakdown**	**Theoretical lecture**	**Pre-Test Post-Test**
26	2	**The student understands the**	**Measuring project process tools .**	**Theoretical lecture**	**Pre-Test**

		lesson	**Purpose of work measurement**		
27	2	**The student understands the lesson**	**Purpose of work measurement**	**Theoretical lecture**	**Pre-Test**
28	2	**The student understands the lesson**	**Methods study**	**Theoretical lecture**	**Pre-Test**
29	2	**The student understands the lesson**	**Types of work measurements**	**Theoretical lecture**	**Pre-Test**
30	2	**The student understands the lesson**	**Time study**	**Theoretical lecture**	**Pre-Test**

23. Course Evaluation

First Semester (20)
Second Semester (20)
Year Works (5+5)
Final Exam (50)

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Course notes prepared by the subject teacher**
Main references (sources)	**Project Management: A Systems Approach to Planning, Scheduling, and Controlling " by Harold Kerzner**
Recommended books and references (scientific journals, reports...)	**Project Management: The Managerial Process" by Clifford Gray and Erik Larson**
Electronic References, Websites	**Websites dealing with project management**

Course Description Form

13.	Course Name:
	Engineering Profession Ethics
14.	Course Code:
	MU0244009
15.	Semester / Year:
	semester
16.	Description Preparation Date:
	1 October 2024
17.Available Attendance Forms:	
	Compulsory
18.Number of Credit Hours (Total) / Number of Units (Total)	
	150 Hours 6 Hour per week for 6 groups
19.	Course administrator's name (mention all, if more than one name)
Name: Ashwaq Mohammad Email:	
20.	Course Objectives

Course Objectives	•	.....
Dr. Tarik Raoof Al-Khateeb	•	.....
Tarik.Raoof.Hasan@uomus.edu.iq	•	.....

21.	Teaching and Learning Strategies
Strategy	

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

		Described in item 10, 11, and 12 By weekly			

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports..... etc

24. Learning and Teaching Resources : already given in above items no, 9

Required textbooks (curricular books, if any)	ccording to course description
Main references (sources)	Given in above item references
Recommended books and references (scientific journals, reports...)	Same
Electronic References, Websites	Same

Course Description Form

13.	Course Name:
	Medical Instrumentation (III).
14.	Course Code:
15.	Semester / Year:
	2024-2025
16.	Description Preparation Date:
	14/10/2024
17.Available Attendance Forms:	
	obligatory attendance
18.Number of Credit Hours (Total) / Number of Units (Total)	
	150 hours (60 theory + 90 practice)
19.	Course administrator's name (mention all, if more than one name)
	Name: Luban Hamdy Hameed Email: Luban_alqudsi@yahoo.com
20.	Course Objectives
Course Objectives	1. Study the medical devices as a purely electronic device, different from the rest the electronic devices 2. Study the internal electronic circuits. 3. Train the students on all electronic circ in medical devices and methods of operat and maintenance.
21.	Teaching and Learning Strategies
Strategy	Academic lectures that contribute to establishing a strong foundation to support the cognitive ability of the student practical laboratory, which provides practical experience to the student through practical experiments, which in turn support and promote the understanding and perception of the theoretical side.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1st , 2nd	10	Part 1 : general systems and specialized tools in general surgery .	general systems and specialized tools in general surgery.	Lecture + practical	Oral test
3rd , 4th , 5th	15	Part 2 : specialized	specialized systems and Inst.	Lecture + practical	Daily test
		systems and Inst .			
6th , 7th	10	Ophthalmic microsurgical Inst .	Ophthalmic microsurgical Inst.	Lecture + practical	Daily test
8th , 9th	10	Open heart & cardiovascular	Open heart & cardiovascular.	Lecture + practical	Daily test
10th	5	Heart – lung machine .	Heart – lung machine.	Lecture + practical	Daily test
11th , 12th	10	Kidney machine .	Kidney machine.	Lecture + practical	Daily test
13th , 14th	10	Surgical diathermy .	Surgical diathermy.	Lecture + practical	First term exam
15th , 16th , 17th	15	Artificial organs – internal & external .	Artificial organs – internal & external.	Lecture + practical	Test
18th , 19th , 20th	15	Dental system	Dental system.	Lecture + practical	Test
21st , 22nd	10	Gynecology Inst .	Gynecology Inst.	Lecture + practical	Test
23rd, 24th	10	Ultrasonic assisting device .	Ultrasonic assisting device.	Lecture + practical	Test
25th , 26th	10	Audio logical surgical units	Audio logical surgical units.	Lecture + practical	Test
27th , 28th	10	Anesthetic units .	Anesthetic units.	Lecture + practical	Second term exam
29th , 30th	10	Intensive care units .	Intensive care units	Lecture + practical	Final exam

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc

First semester	Daily Quizzes	Lab	Second semester	Daily Quizzes	Lab	Final Exam
20	3	2	20	3	2	50

24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Medical Instrumentation Application and Design
Main references (sources)	Biomedical Engineering Handbook - J.D.Bronzino
	S. Ananthi ,2005,"A text book of medical
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	www.bme.ncku.edu.com

Course Description Form

13.	Course Name:
	Advanced logic design
14.	Course Code:
	MU0244005
15.	Semester / Year:
	Second
16.	Description Preparation Date:
	1/10/2024
17.Available Attendance Forms:	
	Check the students' attendance through the attendance and absence electronic program
18.Number of Credit Hours (Total) / Number of Units (Total)	
	120/6
19.	Course administrator's name (mention all, if more than one name)
	Name: Dr. Maher Faik Email:
20.	Course Objectives

Course Objectives	• **During the study year, the student learns the basics of Arduino.** • **Enable the student to know the main principles of Arduino, its types, and the mechanisms used for its purpose**

	• **Enabling the student to know all the basics that he uses in the scientific subject**

21. Teaching and Learning Strategies

Strategy	Daily exams with practical and scientific questions. 1 -Participation marks for difficult competition questions among students. 2- Assigning grades to homework assignments and reports assigned to them. 3- Semester exams for the curriculum in addition to the final exam

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2 3 4	4	Learning about the structure of the Arduino programing language and how to use the variables.	Arduino Programming Language	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
5	4	Write a program using Digital or Analog Inputs of Arduino.	gital and Analog Inputs of Arduino	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
6	4	Temperature experiment using Arduino	Getting Input from Sensors to Arduino	Lectures in PDF form or power point and learning	Homework, quiz, practical exam,

7				Video	theoretical exam
8	4	Connecting the Spark Fun keyboard matrix	Matrix keypad interface with Arduino	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
9 10 11 12	4	Liquid crystal display (LCD) interface with Arduino	Liquid crystal display (LCD) interface with Arduino	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
13	4	Study the Digital Pins Interrupts with Arduino program	Arduino Hardware Interrupt	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
14	4	Use Arduino for data sent from computer	Receiving Serial Data in Arduino	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
15	4	Student projects	Arduino Power Saving Sleep Modes	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
16	4	Controlling Brightness of LED through Code	Pulse width Modulation (PWM)	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam,

					theoretica l exam
17	4	Generate Square Wave, sawtooth, ramp.	Generating of Waveforms based on Arduino	PDF form or power point and learning Video	Homewor k, quiz, practical exam, theoretica l exam
18	4				
19	4	Select any experiment about Bipolar and MOS .families	TTL and CMOS Family	Lectures in PDF form or power point and learning ideo V	omework, quiz, practical exam, heoretical exam
20	4	timer 555	Astable multivibrators	Lectures in PDF form or power point and learning Video	Homewor k, quiz, practical exam, theoretica l exam
21 22	4	Design a maximal and .gold code	Pseudo-Noise (PN) Generation	Lectures in PDF form or power point and learning Video	Homewor k, quiz, practical exam, theoretica l exam
23	4	Students projects	Memory and Storag	Lectures in PDF form or power point and learning Video	Homewor k, quiz, practical exam, theoretica l exam
24 25	4	address multiplexing	Random Access Memories (RAMs)	Lectures in PDF form or power point and learning Video	Homewor k, quiz, practical exam, theoretica l exam

26 27	4	Diode matrix implementation of the X2 ROM	Read only Memories (ROMs), Programmable Read Only Memories (PROMs) [EPROMs, UV EPROMs and EEPROMs]	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
28	4	Free experiment	First in –First out serial memories (FIFOs), Last in - First out memories (LIFOs)	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
29	4		Universal Asynchronous Receiver Transmitte (UART)	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam
30	4	Logic Blocks .(CLBs)of FPGA	Programmable - Logic Arrays (PLAs) [PAL, FPLA and FPGA]	Lectures in PDF form or power point and learning Video	Homework, quiz, practical exam, theoretical exam

23. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily exam, oral exam, monthly exam, final exams, reports, etc.

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Getting Started with Arduino" by Massimo "-1 Banzi:
Main references (sources)	rduino Cookbook" by Michael Margolis:"-2
Recommended books and references (scientific journals, reports...)	Adafruit Learning System-3
Electronic References, Websites	Arduino Official Website-4

Course Description Form

13. Course Name:	
Computer Applications 4	
14. Course Code:	
MU0244007	
15. Semester / Year:	
2023/2024 (yearly)	
16. Description Preparation Date:	
17/9/2023	
17.Available Attendance Forms:	
In class	
18.Number of Credit Hours (Total) / Number of Units (Total) 120 Hours	
19. Course administrator's name (mention all, if more than one name)	
Name: Nawar Saeed Email:	
20. Course Objectives	
Course Objectives	• **Getting to know the PowerPoint program: the concept of the program and its benefits, how to operate it, the main screen components, the concept of presentations, and their benefits.** • **Familiarity with CAD/CAM, its concept and applications**
21. Teaching and Learning Strategies	
Strategy	Theoretical lectures - scientific laboratories - conducting practical experiments using the PowerPoint program and using the CAD-CAM program - workshops - seminars
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st,1	30 theoretical + 30 practical	Student understanding of the lecture	Advanced presentations -Prepare a presentation outline. - Preparing sections and groups. - Customize presentations using templates. - Add comments feature Display control and display setting -Determine display settings. - Use presentation mode. - Control slide presentation and time. Dealing with transitions between slides and slide movement - How to add and customize transitions between	Theoretical and practical lecture	Daily and weekly testing

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			slides - How to add and customize animation for slides - Import files from other applications such as (Excel) and (Access). - Export the presentation in different formats. - Preparing the presentation for printing. Students give their presentations and share their knowledge		
16st, 30th	30 theoretical + 30 practical	Student understanding of the lecture	Introduction and familiarization with the CAD-CAM program interface -Introduction to CAD-CAM -The concept of CAD and its role in engineering design.	Theoretical and practical lecture	Daily and weekly testing

			-The concept of CAM and its role in manufacturing . -Definition of the importance of integration between CAD and CAM. -Install CAD-CAM software -Explore the program interface and learn about the main elements such as the Toolbar and the Menus. -Learn how to create a new file and open an existing file. -Create a simple project and save it. CAD basics -Create simple geometric shapes (square, circle, rectangle). -Editing geometric shapes. -Add basic dimensions and		

			measurements. CAM Basics -Introduction to project preparation for manufacturing processes using CAM. -Learn about the concepts of project preparation. -Configure basic tool paths. Engineering design using CAD -Simple geometric part design. -Add more details and features. -Edit and modify the design. Preparing the project for manufacturing using CAM -Design analysis to prepare it for manufacturing operations. -Preparing tool paths to manufacture the part.		

			-Configure manufacturing process settings. Manufacturing the part using CAM -Collect made parts. -Test assembly of the project. -Check dimensions and compatibility. Evaluating performance and reviewing student projects		

23. Course Evaluation

Daily evaluation - quarterly evaluation - practical evaluation - final evaluation - presentation - daily attendance

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Microsoft PowerPoint 2016 Step by Step, 1st Edition, Joan Lambert. 2. CAD/CAM Computer-Aided Design and Manufacturing, M. Groover.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

13. Course Name:	
English-4	
14. Course Code:	
MU02xxxxx	
15. Semester / Year:	
Annual	
16. Description Preparation Date:	
2/5/2024	
17. Available Attendance Forms:	
Class Attendance	
18. Number of Credit Hours (Total) / Number of Units (Total)	
30 hrs/2	
19. Course administrator's name (mention all, if more than one name)	
Name: Syran Najem Email:	
20. **Course Objectives**	
Course Objectives	1. To review essential grammar of the language. 2. To develop writing skills in engineering topics with focus on enhancing students' abilities to deliver ideas clearly according to academic writing structure, including introduction paragraph, body paragraphs and a conclusion. 3. To improve students' reading and comprehension skills in engineering topics, especially in prosthetics and orthotics engineering, and help them extract relevant information and summarize key points accurately. 4. To enhance students' vocabulary in engineering topics, through reading and listening activities. 5. To improve students' ability to listen effectively to different listening materials in engineering topics, understand the basic ideas, and summarize key points. 6. To improve students' ability to speak and present ideas in front of the class. 7. To enhance students' ability to engage and participate in classes through group reading or discussion.
21. Teaching and Learning Strategies	
Strategy	**A- Cognitive objectives** A.1- The student must understand the meaning and structure of the target language (English), in addition to

	being proficient in its pronunciation at the introductory level. A.2- The student classifies the sources of English vocabulary. A.3- The student should separate the English language from other languages, such as the mother tongue. A.4- The student analyzes topics in the English language. A.5- The student learns to deal with the English language and use it as a language of communication in daily life situations. **B- Course-specific skills objectives** B.1- Introducing the student to the English language and organizing linguistic learning in it as a foreign language. B.2- The student's ability to recognize the English language and its basic skills. B.3- Enabling students to know how to deal with the English language and develop the skill of linguistic self-evaluation through the feedback provided by tests. **C- Teaching and learning methods.** Lectures - scientific laboratories - data shows - workshops - seminars - scientific exhibitions. **D- Evaluation methods** Daily evaluation - quarterly evaluation - practical evaluation - final evaluation - presentation - daily attendance - weekly reports Teaching students in the classroom. **E- Emotional and value goals** E.1- Thinking skill according to the student's understanding of the importance of the English language in communication and delivery. E.2- Observation and perception. E.3- Visualization and meditation. E.4- The student conveys his ideas and questions and expresses what he wants in a clear and sound manner.

	F- Transferable general and qualifying skills (ot skills related to employability and perso development) F.1- Completely clarifying the rules on the blackboard, providing continuous learning opportunities for students, and motivating them to keep up. F.2- Using the forms used for explanation for the purpose of the student acquiring various linguistic and thinking skills. F.3- Using data show for explanation. F.4- Enabling students to benefit from foreign sources, each according to their specialty, for the purpose of study and scientific research.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	(1) Theoretical	The student gets the lesson	Introduction - Textbooks - Units. Conduct a written and oral test to determine the student's level	Theoretical lecture	Daily + monthly tests
2	(1) Theoretical	The student gets the lesson	Hello	Theoretical lecture	Daily + monthly tests
3	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
4	(1) Theoretical	The student gets the lesson	All about you	Theoretical lecture	Daily + monthly tests
5	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
6	(1) Theoretical	The student gets the lesson	Family and friends	Theoretical lecture	Daily + monthly tests
7	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests

8	(1) Theoretical	The student gets the lesson	The way I live	Theoretical lecture	Daily + monthly tests
9	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
10	(1) Theoretical	The student gets the lesson	Every day	Theoretical lecture	Daily + monthly tests
11	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
12	(1) Theoretical	The student gets the lesson	My favorites	Theoretical lecture	Daily + monthly tests
13	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
14	(1) Theoretical	The student gets the lesson	Where I live	Theoretical lecture	Daily + monthly tests
15	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
16	(1) Theoretical	The student gets the lesson	Times past	Theoretical lecture	Daily + monthly tests
17	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
18	(1) Theoretical	The student gets the lesson	We had a great time	Theoretical lecture	Daily + monthly tests
19	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
20	(1) Theoretical	The student gets the lesson	I can do that	Theoretical lecture	Daily + monthly tests
21	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
22	(1) Theoretical	The student gets the lesson	Please and thank you	Theoretical lecture	Daily + monthly tests

23	)1(Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
24	(1) Theoretical	The student gets the lesson	Here and now	Theoretical lecture	Daily + monthly tests
25	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
26	(1) Theoretical	The student gets the lesson	It is time to go	Theoretical lecture	Daily + monthly tests
27	(1) Theoretical	The student gets the lesson	Completion of the unit	Theoretical lecture	Daily + monthly tests
28	(1) Theoretical	The student gets the lesson	Seminar	Theoretical lecture	Daily + monthly tests
29	(1) Theoretical	The student gets the lesson	Conservation	Theoretical lecture	Daily + monthly tests
30	(1) Theoretical	The student gets the lesson	Conservation	Theoretical lecture	Daily + monthly tests

23. Course Evaluation	(1) Theoretica
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc	(1) Theoretica
24. Learning and Teaching Resources	(1) Theoretica

Required textbooks (curricular books, if any)	(1) Theoretical
Main references (sources)	New Headway Plus-for beginner
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	