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

2024-2025

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.

Academic Program Description Form

University Name: .....

Faculty/Institute: Kut University College

Scientific Department: Bachelor Mechanical Power Technical Engineering

Academic or Professional Program Name: Bachelor in Mechanical Power Technical Engineering

Final Certificate Name: Bachelor's

Academic System: Bologna system

Description Preparation Date: 26/1/2025

File Completion Date: 26/1/2025

Signature:

Head of Department Name: Ali Dhaki Ghair

Date: 29/1/2025

Signature:

Scientific Associate Name:

Date:

The file is checked by: Dr. Ali Saad Alwan

Department of Quality Assurance and Performance Evaluation:

Director of the Quality Assurance and Performance Evaluation:

Date: 29/1/2025

Signature:

Approval of the Dean

1. Program Vision

Excellence in Future Energy

2. Program Mission

To provide outstanding education in power engineering mechanics to enable students to design and develop innovative solutions in the energy field.

3. Program Objectives

- Training students to use modern technologies in power engineering.
- Promoting research and development in the fields of sustainable energy.
- Preparing engineers capable of leading energy projects efficiently and effectively.

4. Program Accreditation

ABTE

5. Other external influences

There is a close relationship with the labor market that receives our graduates, so the opinion of the labor market is taken according to the curricula approved for the corresponding department at the Middle Technical University / College of Engineering - Department of Mechanical Power Engineering Technology

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	**12**	**60**		**basic**
College Requirements	**yes**			
Department Requirements	**yes**			
Summer Training	**yes**			
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
First/ First	MPAC100	Mathematics	theoretical	6
First/ First	MPAC101	Engineering Drawing	theoretical	2
			practical	4
First/ First	MPAC102	Workshop	practical	8
First/ First	MPAC103	Engineering Materials	theoretical	4
First/ First	MPAC104	English 1	theoretical	3
First/ second	MPAC105	Matlab	theoretical	2
			practical	2
First/ second	MPAC106	Electrical Engineering	theoretical	4
			practical	4
First/ second	MPAC107	Engineering Mechanics	theoretical	6
First/ second	MPAC108	Thermodynamics 1	theoretical	6
			practical	4
First/ second	MPAC109	Humans Rights and Democracy	theoretical	2
First/ second	MPAC110	Arabic 1	theoretical	2
First/ second	MPAC111	Computer principles	theoretical	2
			practical	2

8. Expected learning outcomes of the program

Knowledge

1- Perform mathematical calculations and design mechanical parts using computers, and study the economic feasibility of various projects in the field of specialization. 2- Diagnose faults and perform maintenance and repair work for mechanical systems in industrial and service applications. 3- Conduct research and studies and search for	

alternatives in the field of specialization and with the latest technologies. 4- Design systems that operate on renewable energy and cooling systems using various manufacturing methods to achieve maximum efficiency. 5- Train students to use modern inspection devices and equipment to diagnose faults, which ensures their ability to work efficiently in advanced work environments native	
Skills	
A graduate of the Mechanical Power Engineering Technology program for its two branches (air conditioning, refrigeration and renewable energy) will have a set of distinctive traits and skills. The following are some of the traits that a graduate of this program can have: 1- Technical knowledge: The graduate of the program will have extensive knowledge of the concepts and techniques of mechanical power engineering technology and its various applications. 2- Design skills: The graduate of the program will have strong design skills in various engineering fields and will have the ability to analyze energy needs and design efficient and	

sustainable systems in accordance with technical and environmental standards. 3- Practical skills: The graduate of the program will have strong practical skills in installing, maintaining and operating mechanical systems and related equipment. 4- Interest in renewal and sustainability: The graduate of the program will have an awareness of the importance of using renewable energy sources and sustainable cooling technology. They will be able to evaluate the impacts of technology on the environment and design systems that rely on renewable energy sources effectively and economically. 5- Communication skills: The graduate of the program will have strong communication skills, as he will be able to communicate effectively with technical teams, customers and workers in the field. They will be able to simplify complex technical concepts and explain them clearly to non-specialists. 6. Problem Solving Ability: The graduate of the program will have the ability to deal with challenges and solve complex problems related to mechanical systems. They will have strong analytical skills and the ability to make	

informed decisions to deal with technical and technological problems in this field.	
Evaluation	
1- Provide comprehensive scientific knowledge in the field of mechanical engineering, with a focus on power mechanics, which enhances a deep understanding of the basic principles. 2- Enable the student to implement practical and field projects, which enhances their ability to solve complex engineering problems. 3- Prepare the student to pursue postgraduate studies by providing a strong scientific foundation and depth of knowledge. 4- Encourage a culture of creativity and innovation among students, which helps them develop new solutions to energy problems and modern technology. 5- Promote community participation by applying technical knowledge in projects that serve the community and meet its needs. 6- Focus on sustainable solutions in the design of systems and technologies, which contributes to preserving the environment.	

9. Teaching and Learning Strategies

The main strategy to be adopted in delivering this unit is to encourage student participation in design, while at the same time refining and expanding their thinking skills in mechanical devices. This will be achieved through classroom, interactive lessons, and by considering types of simple experiments involving some sampling activities that interest students.

10. Evaluation methods

Daily evaluation - semester evaluation - practical evaluation - final evaluation - presentation - daily attendance - weekly reports

11. Faculty

Faculty Members

Academic Rank	Number	Special Requirements/Skills (if applicable)		Number of the teaching staff	
				Staff	Lecturer
Professor	2			Staff	
Lecturer	5			Staff	
Assistant Lecturer	4			Staff	

Professional Development

Mentoring new faculty members

Teamwork skills. Computer and internet skills. Leadership and responsibility skills. Self-education and lifelong learning skills.

Professional development of faculty members

In-house training courses. - Out-of-house training courses. - Scientific research. - Scientific seminars and symposia. - Self-education, etc.

12. **Acceptance Criterion**
Scientific branch – Professional study – Average

13. **The most important sources of information about the program**
1-Textbooks 2- Sources of books related to engineering Mechanics 3- Scientific research

14. Program Development Plan
Using new concepts in the field of engineering mechanics by reviewing the experiences of similar Arab and foreign universities and colleges and benefiting from the development that has occurred with them.

Program Skills Outline														
				Required program Learning outcomes										
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics		
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First/first	MPAC100	Mathematics	Suport	√	√	√	√	√	√	√	√	√	√	√	√
First/first	MPAC101	Engineering Drawing	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First/first	MPAC102	Workshops	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First/first	MPAC103	Engineering Materials	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First/first	MTU1002	English 1	Suport	√	√	√	√	√	√	√	√	√	√	√	√
First/second	MPAC105	Matlab	optional	√	√	√	√	√	√	√	√	√	√	√	√
First/second	MPAC107	Electrical Engineering	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First/second	MPAC108	Engineering Mechanics	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First/ second	MPAC109	Thermodynamics 1	Basic	√	√	√	√	√	√	√	√	√	√	√	√

First/ second	MTU1006	Humans Rights and Democracy	**Suport**	√	√	√	√	√	√	√	√	√	√	√	√
First/ second	MTU1001	Arabic 1	**Suport**	√	√	√	√	√	√	√	√	√	√	√	√
First/ second	MTU1004	Computer principles	**optional**	√	√	√	√	√	√	√	√	√	√	√	√

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics			**Module Delivery**	
Module Type	C			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MPAC100				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Amani Altifat		**e-mail**	amani_al_kadhm@mtu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MSc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	20/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Teaching the student the basic and advanced principles of calculus and its applications to develop the students mental abilities to solve problems and make use of available information in the other scientific materials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	To apply the knowledge of mathematics, science and engineering fundamentals.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on hand-in assignments, written exam, Case study, Quizzes, seminars, Practical testing and Online testing.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	113	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	10
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (15)	5, 10	LO #1, 2, 7 and 9
	Assignments	4	10% (15)	2, 8	LO # 3, 4, 5 and 6
	Projects / Lab.	0	0	0	
	Report	2	10% (10)	7,14	LO # 5, 6 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Determinants, properties,Grammar's rule, application of determinant
Week 2	Vectors, vectors in space, unit vector,Scalar product, vector product
Week 3	Trigonometric functions& relation,Graphing of functions, Trigonometric equations
Week 4	Function of limits, Algebraic limit,Trigonometric limit, Infinity as limit
Week 5	Derivative rule, Algebraic& Trigonometric derivative ,Chain rule, velocity& acceleration
Week 6	Inverse trigonometric functions& its derivative , Logarithm& Exponential functions& its derivative
Week 7	Hyperbolic functions& its derivative, Inverse hyperbolic functions& its derivative
Week 8	Integration, integrals of trigonometric& inverse functions , Integrals of logarithm& Exponential functions
Week 9	Integrals of logarithm& Exponential functions, Integrals of hyperbolic functions& its derivative,L'Hopitals's rules
Week 10	Integration methods; Integration by parts,Integration by partial fraction
Week 11	Integration by trigonometric substitution,Integration of ax2 + bx + c
Week 12	Application of Integration,Area under the curve& between two curves
Week 13	Surface area generated,Length of the curve
Week 14	Volume generated by rotation of curve,Simple differential equations
Week 15	Simpson rule for area,Trapezoidal rule for area, applications

Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Advanced *Engineering Mathematics*	Yes
Recommended Texts	Calculus	Yes
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Drawing			**Module Delivery**	
Module Type	C			☐ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MPAC101				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Maryam Firas Mohsen		**e-mail**	maryam.firas94@mtu.edu.iq	
Module Leader's Acad. Title	Assistant lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Maryam Firas Mohsen		**e-mail**	maryam.firas94@mtu.edu.iq	
Peer Reviewer Name	Younis Muhsin		**e-mail**	younis.muhsin@mtu.edu.iq	
Scientific Committee Approval Date	20/6/2023		**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. This module describes the skills, knowledge, and attitude required to apply technical drawing. At the end of this module, learners will be able to Introduce technical drawings, apply principles of drawing, and project views. 2. to make the students know how to draw (Engineering Drawing) by using AUTOCAD program. 3. This course deals with the basic concept of Engineering Drawing. 4. Define the Engineering Drawing - The Tools used in Engineering Drawing - Types of drawing sheets, types of lines. 5. Learning 2D interface in AutoCAD. 6. Learning 3D interface in AutoCAD.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Define the Engineering Drawing - The Tools used in Engineering Drawing - Types of drawing sheets, types of lines 2-Introduction to AutoCAD and learning how to use the program interface 3-Learning how to use Draw toolbar and its content 4-Learning how to use modify toolbar and its content 5-Learning how to use dimension toolbar and its content and draw 2D exercises 6-Theory of projection, Theory of projection 1st angle 7-Theory of projection 3rd angle 7-Drawing the three projection views 8-Theory of Section and Drawing the three Section views 9-Learning 3D interface in AutoCAD and 3D tools, 3D exercises
Indicative Contents المحتويات الإرشادية	indicative contents include the following: <u>Part A:</u> The Purpose of Engineering Drawings An engineering drawing is a subcategory of technical drawings. The purpose is to convey all the information necessary for manufacturing a product or a part. Engineering drawings use standardized language and symbols. This makes understanding the drawings simple with little to no personal interpretation possibilities. <u>Part B:</u> understanding AutoCAD AutoCAD interface and Its usage like centers around drawing with electronic equivalents of real-life drafting tools. The added support of digital precision helps with measurements and calculations, 3D components, and data sharing. <u>Part C:</u> 2D Drawings Using lines to make 2D drawings, apply dimensions rules, design 2d shapes and drawing projections and sectioning views.

	Part D: 3D drawings 3D CAD, or three-dimensional computer-aided design, is technology for design and technical documentation, which replaces manual drafting with an automated process.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to courage 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. YouTube channel for the teacher includes lessons to help the students in their studying https://www.youtube.com/channel/UCiUmlY4CLQn5ycY4von1P5g

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	88	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

As		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**	3	10% (10)	7	LO # 1-7
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Define the Engineering Drawing, tools, types of drawing sheets, and types of lines
Week 2	Introduction to AutoCAD and learning how to use the program interface
Week 3	Learning how to use Draw toolbar and its content
Week 4	Learning how to use Draw toolbar and its content
Week 5	Learning how to use modify toolbar and its content
Week 6	Learning how to use dimension toolbar and its content and draw 2D exercises
Week 7	Theory of projection, Theory of projection 1st angle
Week 8	Find the 3rd project view from 2 views
Week 9	Theory of projection 3rd angle
Week 10	Drawing the three projection views
Week 11	Theory of Section
Week 12	Drawing the three Section views
Week 13	Learning 3D interface in AutoCAD
Week 14	3D tools, 3D exercises
Week 15	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	ملزمة الرسم الهندسي الخاصه بالكلية التقنية الهندسية بغداد/ قسم هندسة تقنيات المواد	Yes
Recommended Texts	K. Venkata Reddy “Textbook of Engineering Drawing second edition” 2008	No
Websites	https://www.autodesk.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	Workshops			**Module Delivery**	
Module Type	C			☐ **Theory**	
Module Code	MPAC102			☐ **Lecture**	
ECTS Credits	8			☒ **Lab**	
SWL (hr/sem)	200			☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	1		**Semester of Delivery**	1	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Mahmood H. Oudah		**e-mail**	mahmood@mtu.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	10/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The main object of this unit is to identify the students on the gain of the manual skills by preceding the operations and manufacturing processes, and doing the maintenance by using different manual tools and measuring instruments
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the engineering mechanics module, students should be able to: preceding the operations and manufacturing processes, and doing the maintenance by using different manual tools and measuring instruments
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Foundry workshop: 2. Casting of metals and their importance - Purpose of using castings in industry - Contents of the foundry unit - Industrial safety reserves in the foundry - Forming a sand mold for a one-piece model - Sands of molds and hearts: types, sources and properties - Additives, mixing processes and adjusting ingredients - Use of sand mixer - Handling of improvised sand - Sand handling devices - forming sand molds by manual method for a one-piece model - forming a sand mold. 3. Sand mold for a one-piece model with defining the estuaries and elevators - Metal smelting and pouring into the mold - Extracting and cleaning the castings - Forming a mold using the pulp box and drying it in the drying oven - Forming a sand mold for a simple two-piece model with a dog. 4. Forming a sandy mold like the previous one with melting the metal and pouring it into a mold and taking out the casting and cleaning it - Metal melting furnaces: types, qualities, uses (rotary kiln, stirrers and stationary) - Reviewing and examining the castings - Determining the apparent defects and their causes - Reviewing the dimensions of the castings and ensuring that they conform to the required dimensions. 5. Furnaces: types, methods of measurement, how a Vernier works to read altimeters with depths - the process of marking (shenk) - base surfaces - the number used - backing materials - marking thorns - just vertebrae - mens of guilt and guilt notation - right angle - pointing flowers - scale heights and depths 6. Files and the cold process: types and specifications of files - mechanized and their types - methods of attaching artifacts to them - uses of files - the method of cleaning the initiator - the cold process - an exercise on the process of marking and simple filings. 7. Saw cutting: hand saw, saw weapon, saw weapon installation, conditions to be met in the sawing process - an exercise on the sawing process. 8. Lathe: specifications, use, accessories and installation methods - forming the lathe - types of lathe pens and the use of measuring tools. 9. Turning operations: flat turning, straightening, simple graded work with the use of measuring tools. 10. Lathe the internal and external loot in different ways with an explanation of the laws of each method - doing an exercise for the external loot and another for the internal loot. 11. Welding workshop: 12. Occupational safety and security needs - gas welding - equipment used and how to install and control it - other auxiliary tools - used gases and their specifications - welding safety, types and measurements - other auxiliary materials - welding equipment - types of flames, method of ignition and control

	of the required flame - works - rinsing and cleaning the basins to be welded. 13. Practical exercises for welding opposite surfaces, perpendicular surfaces, inclined surfaces and circuit welding, longitudinal and transverse cutting - cutting: circle, irregular shapes - electric arc welding - equipment used. 14. Welding equipment - Practical training on the use of electric arc welding of different surfaces - Point and tape welding - Equipment used in each type - Types of electrodes and their installation method - Practical training on the use of each type. 15. Welding using argon gas - doing welding exercises using argon gas. 16. Gas cutting operations - equipment used - precautions to be provided. 17. Assembly exercises using various different cutting and welding equipment.

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, and hand-in assignments while at the same time refining and expanding their critical thinking skills through the written exam, Case studies, Quizzes, seminars, Practical testing, and Online testing. and this will be achieved through classes and interactive tutorials.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	116	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	84	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	6	40% (40)	3,6,9,12	LO #1,2,…..10
	Report/Lab	14	60% (60)	All	LO # 8
	Seminar				
Summative assessment	Midterm Exam				
	Final Exam				
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي العملي	
Week	Material Covered
Week 1	Casting of metals and their importance - Purpose of using castings in industry - Contents of the foundry unit - Industrial safety reserves in the foundry - Forming a sand mold for a one-piece model - Sands of molds and hearts: types, sources and properties - Additives, mixing processes and adjusting ingredients - Use of sand mixer - Handling of improvised sand - Sand handling devices - forming sand molds by manual method for a one-piece model - forming a sand mold.
Week 2	Sand mold for a one-piece model with defining the estuaries and elevators - Metal smelting and pouring into the mold - Extracting and cleaning the castings - Forming a mold using the pulp box and drying it in the drying oven - Forming a sand mold for a simple two-piece model with a dog.
Week 3	Forming a sandy mold like the previous one with melting the metal and pouring it into a mold and taking out the casting and cleaning it - Metal melting furnaces: types, qualities, uses (rotary kiln, stirrers and stationary) - Reviewing and examining the castings - Determining the apparent defects and their causes - Reviewing the dimensions of the castings and ensuring that they conform to the required dimensions.
Week 4	Files and the cold process: types and specifications of files - mechanized and their types - methods of attaching artifacts to them - uses of files - the method of cleaning the initiator - the cold process - an exercise on the process of marking and simple filings.
Week 5	Saw cutting: hand saw, saw weapon, saw weapon installation, conditions to be met in the sawing process - an exercise on the sawing process.
Week 6	Lathe: specifications, use, accessories and installation methods - forming the lathe - types of lathe pens and the use of measuring tools.
Week 7	Turning operations: flat turning, straightening, simple graded work with the use of measuring tools.
Week 8	Lathe the internal and external loot in different ways with an explanation of the laws of each method - doing an exercise for the external loot and another for the internal loot.
Week 9	Occupational safety and security needs - gas welding - equipment used and how to install and control it - other auxiliary tools - used gases and their specifications - welding safety, types and measurements - other auxiliary materials - welding equipment - types of flames, method of ignition and control of the required flame - works - rinsing and cleaning the basins to be

	welded.
Week 10	Practical exercises for welding opposite surfaces, perpendicular surfaces, inclined surfaces and circuit welding, longitudinal and transverse cutting - cutting: circle, irregular shapes - electric arc welding - equipment used.
Week 11	Welding equipment - Practical training on the use of electric arc welding of different surfaces - Point and tape welding - Equipment used in each type - Types of electrodes and their installation method - Practical training on the use of each type.
Week 12	Welding using argon gas - doing welding exercises using argon gas.
Week 13	Gas cutting operations - equipment used - precautions to be provided.
Week 14	Assembly exercises using various different cutting and welding equipment.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Materials			Module Delivery	
Module Type	C			☒ Theory	
Module Code	MPAC103			☐ Lecture	
ECTS Credits	6			☐ Lab	
SWL (hr/sem)	150			☐ Tutorial ☐ Practical ☐ Seminar	
Module Level	1		Semester of Delivery	1	
Administering Department	Mechanical Power Eng. Dep.		College	TCB	
Module Leader	Dr. Fawziea M.Hussien		e-mail	fawizea_material@mtu.edu.iq	
Module Leader's Acad. Title	Assist. Professor		Module Leader's Qualification	Ph.D	
Module Tutor			e-mail		
Peer Reviewer Name	Taha Hassan Abood		e-mail	dr.taha1967@mtu.edu.iq	
Scientific Committee Approval Date	20 / 6/2023		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. Explain the atomic structure and types of primary and secondary atomic and molecular bonding. 2. Explain the crystal structures and geometry and classify different classes of space lattices in crystalline solids. 3. Perform different types of mechanical testing for evaluation of mechanical properties of material. 4. Extract information of materials behavior from phase diagram. 5. Identify the structures, properties and applications of the main engineering materials (metals, alloys, polymers, ceramics and composites. 6. Explain corrosion mechanisms and types of corrosions and methods of corrosion prevention. 7. Explain the Nano materials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student able to: 1. Mechanical Properties, stress-strain curve, elasticity, plasticity, ductility, young modulus, tensile stress, yield stress, bricking stress, true and engineering stress-strain diagram). 2. Knowledge of Ionic bond, inter-atomic distance attraction forces between atoms, coordination number, covalent bond, and Metallic bond. 3. Knowledge the Crystal structure, unit cell, types of unit cells simple cubic, Face centered cubic, body centered cubic, atomic packing factor, Previous lattice, Miller index, . 4. To Understanding the Phase diagrams 5. To know the types of Engineering Materials 6. To know Corrosion, Definition, why it happens, Type of corrosion, Dry and wet corrosion. Eight Form of corrosion. Mechanism of crevice corrosion 7. To know Methods of prevention and protection.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1-Crystalline and non Crystalline Materials, Metallic crystal structures crystallographic directions ,crystallographic planes-Types of crystal structure, Packing factor.Bonds ,metallic bond ,ionic bonds ,covalent bond ,vander waals bond , hydrogen bond (12 hr) - Defects ,point defects ,dislocations ,linear defects ,planar defects (3hr) -Mechanical properties ,Hardness (Brinell hardness ,Vickers hardness , Rockwell hardness) Tensile test, Impact test, Creep test, Fatigue test. (15 hr) -Ferrous and nonferrous alloys in air conditioning and refrigeration equipment's Copper alloys , Aluminum alloys (3hr) -Solidi faction. Solid solution - Phase –diagrams for binary alloys, Complete solubility in both liquid and solid state, Complete solubility in liquid state and complete insolubility in solid state, Complete solubility in liquid state and limited solubility in solid state, Iron –carbon systems , Types of iron- carbon systems (12 hr) - Corrosion and corrosion prevention(3hr)

	-Applications of Nano materials, types ,manufactures of Nano materials.(3hr)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on hand-in assignments, written exam, Quizzes, reports, seminars, Practical testing and Online testing.

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
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3,6, 9,12	
	Assignments	2	10% (10)	6, 12	
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	14	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	
	Final Exam	2hr	50% (50)	15	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to engineering material science and needs of engineering materials study
Week 2	Classification of materials
Week 3	Ionic bond, inter-atomic distance attraction forces between atoms, coordination number, covalent bond, and Metallic bond.
Week 4	Crystal structure system ,examples and diagrams with definitions
Week 5	Previous lattice, packing factor
Week 6	Definition of alloys, binary alloys, phase diagrams (equilibrium thermal diagrams), eutectic; solid solution
Week 7	solid solution and combination type diagram, Iron-carbon face diagram
Week 8	Iron-carbon cooling curve, phases, reactions, and multi phases
Week 9	Types of thermal equilibrium diagrams
Week 10	Mechanical test and some types
Week 11	Corrosion and types of corrosion
Week 12	Composite material
Week 13	Powder methodology
Week 14	Nano materials
Week 15	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- William D. Callister, Jr.and David G. Rethwisch, Materials Science and EngineeringAn Introduction, 2007 John Wiley & Sons, Inc. 2- Jones, D.A., “Principal and Protection of Corrosion”, PrenticeHall	Yes
Recommended Texts	1-W. Bolton, R. A. Higgins. Materials for Engineers and Technicians, 2014. 2-Mechanical Properties of Materials, David Roylance 2008.	no

	3-Williiam Bolton, Engineering Materials,2014	
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	English 1			**Module Delivery**	
Module Type	S			☐ **Theory**	
Module Code	MTU1002			☒ **Lecture**	
ECTS Credits	2			☐ **Tutorial**	
SWL (hr/sem)	50			☐ **Practical**	
				☐ **Seminar**	
Module Level	1		**Semester of Delivery**	1	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Dr Sabiha A. Bedin		**e-mail**	Sabeeha.bedin2019@mtu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Mr. Labed Kadhim		**e-mail**	Labed1970@mtu.edu.iq	
Peer Reviewer Name	no		**e-mail**		
Scientific Committee Approval Date	20/6/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The goal is to study English language and gain knowledge of it as benefit engineers in general, and to develop speaking skills and understand its basic rules taking the way to the acquisition of the ability to use technical key words in their work and the capability of communicating with other engineers correctly
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Developing speaking skills and understanding its basic rules to take the way to the acquisition of the ability to use technical keywords in their work and the capability of communicating with other engineers correctly .
Indicative Contents المحتويات الإرشادية	Through the prepared curriculum, the student acquires the ability to understand grammar English language through weekly lectures and classes in a gradual and sequential manner for a period of four years, starting from the first stage, such as interrogative, negative, formation of sentences, parts of speech, and others.

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	45	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	5	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
As		**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
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	20% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Parts of speech, vocabulary and comprehension
Week 2	Verb to be, present simple, vocabulary and comprehension.
Week 3	Possessive adjective, possessives, verb to have, verb to do, vocabulary and comprehension.
Week 4	Definite Indefinite articles, pronouns, subject, object,
Week 5	This and that, expletive there, prepositions, vocabulary and comprehension
Week 6	Plurals, , expressions of quantity, , vocabulary and comprehension
Week 7	Simple past, modal verbs, auxiliary verbs,
Week 8	Question words, asking questions, vocabulary and comprehension.
Week 9	Negative and interrogative, I would like and I like, vocabulary and comprehension.
Week 10	Writing a composition, punctuation, vocabulary and comprehension.
Week 11	Present continues, vocabulary and comprehension
Week 12	Types of questions, (yes -no) questions and (wh) questions
Week 13	Simple past, vocabulary and comprehension
Week 14	Simple past, revision
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Headway plus for beginners	Yes
Recommended Texts	Any Grammar and comprehension for technical learning	No
Websites	1- https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering 2- https://link.springer.com/book/10.1007/978-981-10-8624-3 3- https://progressivecollege.ie/courses/early-learning-and-care-qqi-level-5-major-award/?gad=1&gclid=EAIaIQobChMI_Nqu2tqA_wIVZ4VoCR2O0woLEAAYASAAEgI9WvD_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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Matlab			**Module Delivery**	
Module Type	E			☐ **Theory**	
Module Code	MPAC105			☒ **Lecture**	
ECTS Credits	3			☒ **Lab**	
SWL (hr/sem)	75			☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Sura Ghanim Hussein		**e-mail**	sura@mtu.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Name		**e-mail**	None	
Scientific Committee Approval Date	20/06/2023		**Version Number**	1.0	

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

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

Module Aims	To make the student able to process, program, and solve arithmetic and engineering problems using Matlab
Module Learning Outcomes	1. To apply the knowledge about Matlab. 2. To enable students solve scientific and mathematical problems, write codes, design projects and process images.
Indicative Contents	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Assessment is based on hand-in assignments, written exam, Case study, Quizzes, seminars, Practical testing and Online testing.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem)	60	**Structured SWL (h/w)**	4
Unstructured SWL (h/sem)	15	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	75		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

Week	Material Covered
Week 1	Introduction to Matlab

Week 2	Mathematical Functions
Week 3	Vectors & Matrices
Week 4	Vectors & Matrices
Week 5	Introduction to Programming in MATLAB
Week 6	Control flow
Week 7	Control flow
Week 8	Debugging
Week 9	Mathematical Equations
Week 10	Graph Plot
Week 11	GUI
Week 12	GUI
Week 13	Image Processing
Week 14	Simulink
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: Introduction to Matlab and Mathematical Functions
Week 2	Lab 2: Vectors & Matrices
Week 3	Lab 3: Control flow
Week 4	Lab 4: Mathematical Equations
Week 5	Lab 5: GUI
Week 6	Lab 6: Image Processing
Week 7	Lab 7: Simulink

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Recommended Texts (Website)	https://www.mathworks.com/products/matlab.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	Electrical Engineering			Module Delivery	
Module Type	C			☐ Theory	
Module Code	MPAC107			☒ Lecture	
ECTS Credits	7			☒ Lab	
SWL (hr/sem)	175			☐ Tutorial ☐ Practical ☐ Seminar	
Module Level	1		Semester of Delivery	2	
Administering Department	Mechanical Power Eng. Dep.		College	TCB	
Module Leader	Fatima Lateef Mohammed		e-mail	fatima_lateef@mtu.edu.iq	
Module Leader's Acad. Title	Lecturer		Module Leader's Qualification	M.Sc.	
Module Tutor	None		e-mail	E-mail	
Peer Reviewer Name	Oday Asam		e-mail	Oday-asam@mtu.edu.iq	
Scientific Committee Approval Date	20/6/2023		Version Number	1	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. This is the basic subject for all electrical and electronic circuits. 2. This course deals with the basic concept of electrical circuits. 3. To understand voltage, current and power from a given circuit. 4. To develop problem solving skills and understanding of circuit theory through the application of techniques. 5. To understand Kirchhoff's current and voltage Laws problems.
Module Learning Outcomes	Upon completion of the course, students should be able to: 1. Define Ohm's law. 2. List the various terms associated with electrical circuits. 3. Recognize how electricity works in electrical circuits. 4. Describe electrical power, charge, and current. 5. Explain the two Kirchoff's laws used in circuit analysis. 6. Discuss the various properties of resistors, capacitors, and inductors. 7. Discuss the operations of sinusoid and phasors in an electric circuit. 8. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents	Indicative content includes the following. DC circuits – Current and voltage definitions, Passive sign convention and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law. Anatomy of a circuit, Network reduction. [15 hrs] AC circuits I – Time dependent signals, average and RMS values. Capacitance and inductance, energy storage elements, simple AC steady-state sinusoidal analysis. [15 hrs] AC Circuits II - RL, RC and RLC circuits - Frequency response of RLC circuits, simple filter and band-pass circuits, resonance and Q-factor, use of Bode plots, use of differential equations and their solutions. Time response (natural and step responses). Introduction to second order circuits. [15 hrs] Revision problem classes. [6 hrs] Resistive networks, voltage and current sources, Thevenin equivalent circuits, current and voltage division, input resistance, output resistance, maximum

	power transfer, RMS and power dissipation, current limiting and over voltage protection. [15 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Assessment is based on hand-in assignments, participation in the exercises, classes interactive tutorials, Quizzes and Practical testing

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem)	116	**Structured SWL (h/w)**	8
Unstructured SWL (h/sem)	59	**Unstructured SWL (h/w)**	6
Total SWL (h/sem)	175		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Resistance, conductance, effect of temp. on the resistance value
Week 2	Oham’s law, series connection, parallel connection, compound connection
Week 3	Voltage and current divider solved examples, kirchhoff’s laws
Week 4	Star-delta conversion examples
Week 5	Thevenin’s theorem, maximum power transfer
Week 6	Nodal method, superposition

Week 7	Alternating voltage and current
Week 8	Frequency, period, instantaneous value of voltage and current
Week 9	Component of A.C circuit, pure resistance, pure inductance, pure capacitance
Week 10	Series A.C circuit, R,L,C in series
Week 11	Impedance, phase angle, resonance, phase diagram
Week 12	Parallel A.C circuit, R,L,C, Admittance, power factor
Week 13	Active, reactive, apparent power in A.C circuit
Week 14	3-phase circuit
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Lab 1: Using Multimeter to measure Voltage, Current and Resistance
Week 2	Lab 2: Ohm's law.
Week 3	Lab 3: Voltage and current divider rules
Week 4	Lab 4: Kirchhoff's laws
Week 5	Lab 5: Thevenin's Theorem
Week 6	Lab 6: Series RLC circuit
Week 7	Lab 7: Parallel RLC circuit

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach, 2020.	No
Websites	https://docs.google.com/file/d/0B_O5jg0LZ_ZXYlg0WVU1bkhrLTg/edit	

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 Mechanics			**Module Delivery**	
Module Type	C			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MPAC108				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Ahmed Jawad Khaleel		**e-mail**	ahmed1982_jk@mtu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MSc	
Module Tutor			**e-mail**		
Peer Reviewer Name	Younis Muhsin		**e-mail**	Younis.muhsin@mtu.edu.iq	
Scientific Committee Approval Date	20 / 6/2023		**Version Number**	1	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	MPAC100	**Semester**	L1,S1
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The course aims to provide first-stage students with basic knowledge of engineering mechanics. 2. Everything related to forces and motion and related concepts such as equilibrium and analysis of forces, centers of gravity, moments of inertia, friction and motion of bodies are studied. 3. The course aims to enable students to gain access to the science of geometry by understanding how to perform correct engineering analysis 4. Dealing with laws, equations, illustrations, and other data, and linking data together to reach outputs. 5. Enabling the student to be able to analyze, devise and draw conclusions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student can understand the fundamentals and laws of engineering mechanics. 2. The student is familiar with the types of forces and methods of analysis. 3. The student can understand the basics of the Equilibrium of a Particle 4. Understand the Moment of a Force around the point and axis. 5. Learn the basics of Equilibrium of a Rigid Body and equations of equilibrium. 6. The student can understand Structural Analysis. 7. Enabling students to obtain knowledge, understanding, and analyze the motion of mechanical systems. 8. Learn concepts of motion laws. 9. Learn and analyze the motion of projectiles. 10. Absolute Dependent Motion Analysis of Two Particles. 11. The Students can understand the Kinetics of a Particle: Force and Acceleration. 12. The Students can understand the Kinetics of a Particle: Work and Energy.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** 1. The fundamentals and laws of engineering mechanics. 2. Analyze forces. 3. Equilibrium of a Particle 4. Moment of a Force 5. Structural Analysis 6. Laws of Motion. 7. Analyze the motion of mechanical systems.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on hand-in assignments, written exams, Quizzes, reports, Practical testing ,and Online testing.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	113	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	
	Assignments	5	10% (10)	3,5,7,10,13	
	Projects / Lab.				
	Report	2	10% (10)	8 , 15	
Summative assessment	Midterm Exam	2 hr	20% (20)		
	Final Exam	2hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	STATIC: Basic principles in mechanics, Vector Quantities and forces Analysis (2d ,3d)
Week 2	Equilibrium of a Particle (2d , 3d)
Week 3	Force System Resultants: Moment of a Force Scalar Formulation/Moment of a Force-Vector Formulation
Week 4	Force System Resultants: Moment of a Force about a Specified Axis/Moment of a Couple
Week 5	Equilibrium of a Rigid Body: Conditions for Rigid Body Equilibrium/ Free-Body Diagrams/ Equations of Equilibrium
Week 6	Equilibrium in three dimensions: Free-Body Diagrams/ Equations of Equilibrium
Week 7	Structural Analysis: Simple Trusses/ The Method of Joints/ Zero·Force Members
Week 8	Structural Analysis:The Method of Sections/ Space Trusses/ Frames and Machines
Week 9	DYNAMICS: Kinematics of a Particle/ Rectilinear Kinematics: Continuous Motion
Week 10	Motion of a Projectile
Week 11	Absolute Dependent Motion Analysis of Two Particles
Week 12	Kinetics of a Particle: Force and Acceleration
Week 13	Kinetics of a Particle: Work and Energy/ The Work of a Force
Week 14	Principle of Work and Energy
Week 15	Power and Efficiency

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Engineering Mechanics, Twelfth Edition, R. C. Hibbeler	Yes
Recommended Texts		
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Thermodynamics 1			**Module Delivery**	
Module Type	C			☐ Theory	
Module Code	MPAC109			☒ Lecture	
ECTS Credits	8			☒ Lab	
SWL (hr/sem)	200			☐ Tutorial ☐ Practical ☐ Seminar	
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Hassan J. Fadhil		**e-mail**	hassan_jfsd@yahoo.com	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD	
Module Tutor			**e-mail**		
Peer Reviewer Name	Dr.Ahmed Qasim Ahmed		**e-mail**	aqaa1@mtu.edu.iq	
Scientific Committee Approval Date	20 /6/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Studying the principles of thermodynamics including, thermal systems according to energy interactions with their direct surroundings, the differences in the properties of both the system and the surrounding with their engineering applications
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To know the basic properties of material with units 2. To know the laws of thermodynamics 3. To know the phases of substance 4. To know the basic thermodynamic cycles 5. To know the entropy 6. To know the basics on combustion
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Laws of thermodynamics First and second law of thermodynamics. [24 hrs.] Part B – P-V diagram P-v diagram of water and different gases. Phases of the water and substances. [16 hrs.] Part C – Thermal cycle Carnot cycle, vapor cycle, steam cycle, gas cycle, Otto cycle, Diesel cycle, duel cycle, and duel cycle. [58 hrs.] Part D – Combustion Combustion, combustion and equilibrium equations [24 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on hand-in assignment, written exams, case study, quizzes, seminars and practical testing.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	144	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	10
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	10
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	5	5 % (5)	2,5,8,10,13	LO # 1, 4, 5, 7,8
	Assignments	5	5 % (5)	1,4,7,11,15	LO # 1-15
	Lab.	10	10 % (10)	1-9	LO # 1-15
	Report	10	10 % (10)	1-8	LO # 1-15
Summative assessment	**Midterm Exam**	3 hr.	20 % (20)	9	LO # 1-15
	Final Exam	3 hr.	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introductions, references, units, pressure, force, work, Temperature, unit of temperature and conversion, temperature measurements. Zeorith law of Thermodynamics. Energy, types of energy, positional, kinetic, internal and flow energy energies. Heat and work, power, enthalpy.
Week 2	First law of thermodynamics, Steady flow energy equation for open system, non-flow energy equation Transient state,
Week 3	Ideal gas, Boyle's law and Charles law and equation of state, Specific heat at constant pressure and constant volume, Closed system processes using ideal gas. Isometric and isobaric processes
Week 4	Isothermal and adiabatic processes, Polytropic processes, Control volume processes
Week 5	Vapour, phase of substance, Phase change curve on P-V diagram. Dryness fraction, liquid and vapour lines, wet vapour
Week 6	Steam tables and Examples on steam tables, Super-heated vapour, tables of super-heated tables
Week 7	Processes using two phase system, processes on P-V diagram, Irreversible processes Closed system, Second law of thermodynamics, heat engine, heat pump
Week 8	Carnot cycle and reversed Carnot cycle. Irreversible and reversible processes
Week 9	Clausius in equality for second law, Entropy on T-S and entropy calculations.
Week 10	Entropy for vapour, Entropy for system and surroundings, Isentropic efficiency
Week 11	Air standard cycle, Otto cycle. Diesel and Dual cycles
Week 12	Steam power plants- Rankin Cycle, Rankin Cycle with superheated. Modified Rankin Cycle
Week 13	Modification on Carnot to use as vapour compression cycle. Vapour compression cycle,
Week 14	Combustion, combustion equations, equilibrium of combustion equation. Volumetric analysis on combustion process
Week 15	Final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Measurement and instruments
Week 2	Types of temperature measurements
Week 3	Measuring the velocity of air
Week 4	Calibration of thermocouple
Week 5	Joule experiment
Week 6	Boyle Experiment
Week 7	Measuring of C.V of fuel
Week 8	Measuring specific heats
Week 9	Finding the law of expansion
Week 10	Measuring the latent heat of evaporation
Week 11	Heat pump
Week 12	finding of the degree of superheating
Week 13	Performance of simple compression cycle
Week 14	Actual vapour compression cycle
Week 15	Final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Borgnakke, C. and Sonntag, R.E., 2022. Fundamentals of thermodynamics. John Wiley & Sons. Cengel, Y.A., Boles, M.A. and Kanoğlu, M., 2011. Thermodynamics: an engineering approach. New	Yes

	York: McGraw-hill. Rajput, R.K., 2005. A textbook of engineering thermodynamics. Laxmi Publications.	

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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Humans Rights and Democracy			**Module Delivery**	
Module Type	B			☒ **Theory**	
Module Code	MTU1006			☐ **Lecture**	
ECTS Credits	2			☐ **Lab**	
SWL (hr/sem)	50			☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Dr. Hind Qasim Mohammed		**e-mail**	Hind.qasim90@gmail.com	
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**	PhD	
Module Tutor	NA		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**	E-mail	
Scientific Committee Approval Date	20/6/2023		**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	تعريف الطلبة بالنظام الديمقراطي واساسياته . تعريف الطلبة بحقوقه وواجباته التي يتمتع بها في ظل النظام السياسي الديمقراطي . تعريف الطلبة بكافة حقوقهم الانسانية وكيفية الحفاظ عليها والدفاع عنها وحمايتها . تعريف الطلبة بالنظام السياسي الديمقراطي في العراق ودستور العراق الدائم لعام 2003 .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	أ- المعرفة والفهم : ب- من خلال القاء المحاضرات النظرية الصفية . ت- تكليف الطلبة بقراءة كتاب معين . ث- تكليف الطلبة بواجب بيتي باعداد تقرير عن موضوع معين . ج- الامتحانات الشفهي
Indicative Contents المحتويات الإرشادية	يتكون المقرر من جزئين الأول يختص بالتعريف بحقوق الانسان واهم المواضيع التي يتعرف من خلالها الطلبة على حقوقهم . وتضمن الجزء الثاني التعريف بالديمقراطية وطبيعة النظم الديمقراطية وكيفية الحكم بالنظام الديمقراطي فضلا عن التعرف بالنظام الديمقراطي في العراق

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	محاظرات شرحية مكتوبة – اسئلة واجوبة – الاطلاع ع مصادر معينة

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	20% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	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

weeks	Material Covered
1	▪ حقوق الانسان . تعريفها . اهدافها ▪ حقوق الإنسان في الحضارات القديمة وفي الشرائع السماوية
2	▪ حقوق الإنسان في التاريخ المعاصر والحديث: الاعتراف بحقوق الإنسان منذ الحرب العالمية ألاولى وعصبة الأمم المتحدة ▪ الاعتراف الإقليمي بحقوق الإنسان اللاتفاقيةالأوربية لحقوق الإنسان 1950 الاتفاقية الأمريكية ▪ لحقوق الانسان 1969 الميثاق الإفريقي لحقوق الإنسان 1981. الميثاق العربي لحقوق الإنسان 1994
3	▪ المنظمات الغير حكومية وحقوق الانسان (1- اللجنة الدولية للصليب الاحمر، 2- منظمة العفو الدولية ▪ منظمة مراقبة حقوق الانسان ، المنظمات الوطنية لحقوق الانسان ▪ حقوق الانسان في الدستور العراقي (ا لحقوق والحريات في دستور جمهورية العراق لسنة 2005)
4	▪ العلاقة بين حقوق الانسان والحريات العامة في الاعلان العالمي لحقوق الانسان ▪ في الإعلان العالمي لحقوق الإنسان ▪ في المواثيق الاقليمية والدساتير الوطنية ▪ حقوق الانسان الاقتصادية والاجتماعية والبيئية والثقافية والتنموية وحقوق الانسان المدنية والسياسية.
5	▪ حقوق الانسان الحديثة (الحق في التنمية ، الحق في البيئة النظيفة ، الحق في التضامن ، الحق في الدين) ▪ ضمانات احترام وحماية حقوق الانسان على الصعيد الوطني . الضمانات في الدستور والقوانين ▪ الضمانات في مبدا سيادة القانون الضمانات في الرقابة الدستورية الضمانات في حرية الصحافة ▪ والراي العام دور المنظمات الغير حكومية في احترام وحماية حقوق الانسان
6	▪ ضمانات احترام وحماية حقوق الانسان على الصعيد الدولي ▪ دور الامم المتحدة ووكالاتها المختصة في توفير الضمانات ▪ دور المنظمات الاقليمية (الجامعة العربية ، الاتحاد الاوربي ، الاتحاد الافريقي ، منظمة الدول الامريكية) ▪ دور المنظمات الدولية الاقليمية غير الحكومية والراي العام في احترام وحماية حقوق الانسان ▪ النظرية العامة للحريات ،اصل الحقوق والحريات ، موقف الشرع من الحقوق والحريات المعلنة ،استخدام مصطلح الحريات العامة
7	▪ دولة القانون وضمانات دولة القانون ▪ تنظيم الحريات العامة من قبل السلطات العامة
8	▪ المساواة : التطور التاريخي لمفهوم المساواة ▪ التطور الحديث لمفهوم المساواة ▪ المساواة بين الجنسين ▪ المساواة بين الافراد حسب معتقداتهم وعنصرهم
9	▪ الديمقراطية تعريفها وانواعها

	10	▪ مقومات ومعوقات الديمقراطية
	11	▪ النظام الديمقراطي في دستور العراق لسنة 2003 – الانتخابات – الاحزاب السياسية -
	12	▪ الحريات الاساسية ، الحريات الفكرية ، الحريات الاقتصادية والاجتماعية مفهوم الحريات وتصنيف الحريات العامة ,
	13	▪ التقدم العلمي والتقني والحريات العامة ▪ مستقبل الحريات العامة
	14	▪ المفهوم العام للوعي (تعريف الوعي البيئي والوعي المائي والحاجة لدراسته) ▪ مفهوم الوعي البيئي ▪ وسائل تحقيق الوعي البيئي ▪ ابعاد الوعي المائي ▪ االتحديات التي تواجه الامن المائي في العراق ▪ جراءات مقترحة لحل ازمة نقص المياه العذبة
	15	▪ تعريف الابادة الجماعية ، اتفاقية الامم المتحدة بشان الابادة الجماعية ▪ عمليات الابادة الجماعية ، محاكم الابادة الجماعية ،جرائم الابادة الجماعية ،الجرائم ضد الانسانية ▪ جرائم حزب البعث الاشتراكي ▪ حقوق ذوي الاعاقة

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	ملزمة حقوق الانسان والديمقراطية الجامعة التقنية الوسطى	no
Recommended Texts	د. فاروق السامرائي ، حقوق الانسان في القرأن الكريم ، مركز دراسات الوحدة العربية ، بيروت ، 2002 رعد ناجي الجدة واخرون ، حقوق الانسان والطفل والديمقراطية ، 2009 .	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	**Arabic 1**			**Module Delivery**	
Module Type	B			☒ Theory	
Module Code	MTU1001			☐ Lecture	
ECTS Credits	2			☐ Lab	
SWL (hr/sem)	50			☐ Tutorial ☐ Practical ☐ Seminar	
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Aseel Ghazi Ibrahim		**e-mail**	Asilaljanabi2020@gmail.com	
Module Leader's Acad. Title	Assist Lecturer		**Module Leader's Qualification**	Msc	
Module Tutor	NA		**e-mail**		
Peer Reviewer Name	Dr. Ali Khadum Jawad		**e-mail**	dr.ali.kadhim@mtu.edu.iq	
Scientific Committee Approval Date	20 / 6/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NA	**Semester**	
Co-requisites module	NA	**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 نحويًا ولغويًا. 2- توسيع نطاق الوعي اللغويّ والأدبيّ ليشمل جميع الطلبة والمجتمع المحلي من خلال المحاضرات والندوات والدورات التدريبية المختلفة، والأخذ بيد المبدعين مِن أصحاب المواهب.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	المعرفة والفهم والتطبيق من خلال إلقاء المحاضرات النظرية الصفية وحث الطلبة على قراءة كتاب معين في المادة، إضافة إلى تكليف الطلبة بواجبات بحثيّة، أو تقارير مكتبيّة 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 استراتيجيات التعلم والتعليم	
Strategies	استراتيجيات التعلم: التعلم الذاتي ـ التعلم النشط ـ التعلم التعاوني. استراتيجيات التعليم : عرض المادة ـ طرح الأسئلة ـ اختبارات صفيّة ـ واجب بيتي.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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

		mber			Outcome
Formative assessment	Quizzes	2	20%	1 ,2 ,3 , 4	تطبيق ما تعلمه الطالب من قواعد في الأعمال الكتابية وتنمية المعرفة اللغويّة لديه من خلال تمكين مهارات الإملاء، واستخدام الكلمة المناسبة في موضعها المناسب.
	Assignments	2	10%	5 , 11	
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2hr	20%	7	
	Final Exam	3hr	50%	15	
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	- مفهوم الأخطاء اللغويّة - قواعد كتابة التاء المربوطة والتاء المفتوحة
Week 2	- الألف الممدودة والمقصورة - الحروف الشمسيّة والقمريّة
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 الأخطاء اللغويّة الشائعة
Week 10	تطبيقات الأخطاء اللغويّة الشائعة
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	امتحان

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. كتاب الاملاء الفريد: نعوم جرجيس زرازير، نقحه: د. مصطفى جواد – مطابع النعمان النجف الاشرف – ط6- 1973م. 2. كتاب الاملاء للمرحلة المتوسطة: عبد الجبار عبد الله الآلوسي واخرون – وزارة التربية المديرية العامة للمناهج – ط18 – 2014م. 3. دروس فب اللغة والنحو والاملاء لموظفي الدولة: إسماعيل حمود عطوان واخرون – مطبعة وزارة التربية (3) بغداد – ط2 – 1984م. 4. اللغة العربية العامة لأقسام غير الاختصاص: عبد القادر حسن امين واخرون – وزارة التعليم العالي والبحث العلمي – ط2 – 2000م.	نعم
Recommended Texts		
Websites		

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

				required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Computer principles			**Module Delivery**	
Module Type	E			☐ **Theory**	
Module Code	MTU1004			☒ **Lecture**	
ECTS Credits	3			☒ **Lab**	
SWL (hr/sem)	75			☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level			**Semester of Delivery**	2	
Administering Department	Mechanical Power Eng. Dep.		**College**	TCB	
Module Leader	Rahman A. Hussein			alshekhrahman@gmail.com	
Module Leader's Acad. Title	Ass. Professor		**Module Leader's Qualification**	MSc.	
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**	E-mail	
Scientific Committee Approval Date	Name (if available)		**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	1. Utilize the computer for fundamental tasks.

أهداف المادة الدراسية	2. Identify and discuss the hardware components of the computer system. 3. Creating documents using a word processor and creating presentations. 4. To describe the evolution of computer networks and the Internet. 5. To describe the difference between a computer network and a distributed system. 6. To explain the difference between LAN, MAN, WAN
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Understand the basics of computers, their types and classifications. 2. Understand the physical input units. 3. Understand the physical output units. 4. Understanding operating systems and application programs. 5. Dealing with the Windows 10 operating system. 6. Knowing how to work with Word, Excel, Presentation programs. 7. Knowledge of the concepts of the Internet and the Web. 8. Knowledge of the concept of computer networks. 9. Know how to compare computer networks. 10. Know how to configure email. 11. Know how to computer troubleshoot.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. This module, directed to first-year students in the Department of Total Quality Management Technologies, dealt with introducing the student to what a computer and what input and output devices [3]. 2. This module, directed to first-year students in the Department of Total Quality Management Technologies, dealt with introducing the student to what is the internal structure of a computer [9]. 3. This module, directed to first-year students in the Department of Total Quality Management Technologies, dealt with introducing the student to what is the Windows 2010 operating system [6]. 4. This module, directed to first-year students in the Total Quality Management Techniques Department, dealt with introducing the student to the basics of Office programs (Word and Excel, Presentation) [21]. 5. This module, directed to first-year students in the Department of Total Quality Management Technologies, dealt with introducing the student to the components of computer networks [3]. 6. This module, directed to first-year students in the Total Quality Management Techniques Department, introduced the student to how to compose an email and also how to computer troubleshoot [3].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on hand-in assignments, written exam, Case study, Quizzes, Practical testing.

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	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	**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**	1	20% (10)	5 , 9	LO #1,2-9
	Assignments	2	10% (20)	4 , 7 , 8 , 10	LO # 10
	Projects / Lab.	1	10% (10)	11	LO # 11
	Report	2 hr	10% (10)	12	LO # 1-12
Summative assessment	**Midterm Exam**	3hr	50% (50)	15	All
	Final Exam	1	20% (10)	5 , 9	LO #1,2-9
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

Week	Material Covered
Week 1	Introduction to Computer: Concepts of hardware and software with their components, concept of computing, data and information, applications of information electronics and communication technology (IECT), connecting input/output devices, and peripherals to CPU.
Week 2-3	Computer components: computer portions, hardware parts, i/o units, memory types, basic CPU components, computer ports, personal computer, personal computer (features and type).
Week 4-5-	Operating system and graphical user interface GUI: Operating system, basics of common operating system, the user interface, using mouse techniques, use of common icons, status bar, using menu and menu-selection, concept of folders and directions, opening and closing of different windows, creating short cuts.
Week 6-8	Word Processing: word processing basics, opening and closing of documents, text creation and manipulation, formatting of text, table handling, spell check, language setting and thesaurus, printing of word document.
Week 9-10	Spreadsheet: basics of spreadsheet, manipulation of cells, formulas and functions, editing of spreadsheet, printing of spreadsheet.
Week 11-12	Presentation Software: Basics of presentation software, creating presentations, preparation and presentation of slides, slide show, taking printouts of presentation/ handouts.
Week 13	Introduction to internet and web browsers: Computer networks basics, LAN, WAN, concept of internet and its applications, Connecting to internet, world wide web, web browsing software, search engines, understanding URL, domain name, IP address.
Week 14	Communications and Emails: Basics of electronic mail, getting an email account, sending and receiving emails, Accessing sent emails, using emails, document collaboration. Computer Troubleshooting: Identify and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues (Electronic Intrusion & Viruses)
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Explaining input and output devices practically.
Week 2-3	Explain the internal structure of the computer.
Week 4-5	Explanation of operating systems and application programs.
Week 6-8	Explain the Word Program.
Week 9-10	Explain the Excel Program.
Week 11-12	Explain the Presentation Program.
Week 13	Explain computer networks basics.
Week 14	Explain communications and Emails, Computer Troubleshooting (Electronic Intrusion & Viruses).
Week 15	Final Exam.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		yes
Recommended Texts	Al-Khader Ali Al-Khader, researcher, "Computer Basics", 2016. Ziad Muhammad Abboud, researcher," Computer Basics and Office Applications" , 2014.	
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
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Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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