

## Academic Program Description Form

University Name: University of Babylon

College/Institute: College of Engineering - Al-Musayyib

Program Name: Academic Program for obtaining an undergraduate degree, Bachelor of Science in Energy Engineering and Renewable Energies Engineering.

Final Degree Name: Bachelor of Science in Energy Engineering and Renewable Energies

Academic System: Bologna System

Description Preparation Date: 9/4/2023

File Completion Date: 14/9/2025

The file was prepared by the Academic Description Committee in the Department of Energy Engineering and Renewable Energies. The coordinator here is a committee, not an individual, which was formed by Administrative Order D/8/1446 on 11/5/2025. The committee consists of: (Assist. Prof. Dr. Hussein Ali Hassan – the head, and members: Assist. Engineer Ali Ghalib Hussein, Assist. Engineer Fatima Adeeb Mousa, Assist. Engineer Mohammed Karim Mohammed, Assist. Engineer Mustafa Abdul Karim Ahmed)

Signature of the Head of the Quality Assurance Committee in the Department of Energy Engineering and Renewable Energies

(Assist. Prof. Dr. Hussein Ali Hassan):



Date: 14/9/2025

File reviewed by the Quality Assurance and University Performance Unit in the College Director of the Quality Assurance and University Performance Unit: Lecturer. Dr. Noor

Mohammad Jassim:



Date: 14/9/2025

Signature of the Department Head: Assist. Prof. Dr. Ali Jaber Abdulhamed:



Date: 14/9/2025

Signature of the Assistant Dean for Academic Affairs: Assist. Prof. Dr. Sana'a Abdul



Razzaq Jassim:

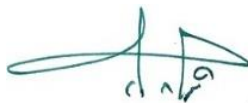
Date: 14/9/2025

Signature

Endorsement by the Dean

Assist. Prof. Dr. Wissam Jaleel Khudayer

Date: 14/9/2025



### 1. The program Vision

Leadership in engineering education and learning in the field of energy and renewable energy engineering, with excellence in scientific research locally and globally, while providing community services and meeting the needs of the labor market.

### 2. The Program message

Active contribution to the advancement of energy and renewable energy engineering by preparing competent engineering graduates with high professional skills and ethics, supporting the labor market and society, and producing rigorous applied scientific research that serves and develops the field of specialization.

### 3. The Program Goals

1. Preparing Competent Engineers who possess both theoretical and practical knowledge and skills in the fields of conventional and renewable energy engineering, enabling them to practice the profession efficiently and meet labor market demands.
2. Contributing to Sustainable Development through conducting applied research, offering scientific and technical consultations, and collaborating with industrial and research institutions both locally and internationally.
3. Promoting Lifelong Learning and Professional Development through training, seminars, scientific courses, and encouraging scholarships and graduate studies to keep up with global advancements.
4. Integrating Modern Technology, particularly information systems, into curricula and research methodologies to enhance the quality of education and research to global standards.

### 4. Program accreditation

Does the program have program accreditation? From which side?

The application for accreditation has already been submitted Iraqi Council for Accreditation of Engineering Education

#### 5. Other external influences

Is there a sponsor for the program?

Governmental support (Ministry of Higher Education and Scientific Research)

#### 6. Program structure

Program structure	Number of courses	Study unit	percentage	Program structure
Enterprise requirements	4	9	3.8%	comments *
College requirements	3	21	8.7%	core
Department requirements	42	210	87.5%	core
summer training	-	-	-	core
Other				-

\* Notes may include whether the course is core or elective.

#### 7. Program description

Year/level	Course or course code	Name of the course or course	Credit hours	
			theoretical	practical
The first stage/ The first semester	UOBAB0301011	Engineering Drawing and Auto-CAD I	4	2
	UOBAB0301012	Electrical Circuits	3	2
	UOBAB0301013	Mathematics I	4	0
	UOBAB0301014	Physics	2	2
	UOBAB0301015	Fundamental of Computer	1	2
	UOBAB0301016	Arabic Language	2	0
Year/level	Course or course code	Name of the course or course	Credit hours	

			theoretical	practical
The first stage/ The second semester	UOBAB0301021	Engineering Drawing and Auto-CAD II	4	2
	UOBAB0301022	Engineering Mechanics	4	0
	UOBAB0301023	Mathematics II	4	0
	UOBAB0301024	Manufacturing Processes & Engineering Workshop	2	2
	UOBAB0301025	Chemistry	2	2
	UOBAB0301026	English Language I	2	0

#### 8. Expected learning outcomes of the programme

##### Knowledge

The ability to analyze the performance of thermal and gas electrical power generation plants through the ability to distinguish, identify, define, formulate and solve engineering problems by applying the principles of engineering, science and mathematics.

Learning outcomes 1

Knowledge and familiarity with the most important technologies used in the design and manufacture of energy production systems through the ability to realize the necessity of continuing self-development of professional knowledge and how to find, evaluate, compile and apply it correctly.

Learning outcomes 6

##### Skills

The ability to produce engineering designs that meet the required needs represented by the requirements of international specifications for energy production and renewable energies, the requirements of the labor market and stakeholders within the restrictions of the type of use and other determinants through analysis and synthesis processes in the design process.

Learning outcomes 2

The ability to evaluate power generation systems and renewable energies and their impact on the amount of environmental pollution through the ability to create and implement appropriate measurements and tests.

Learning outcomes 3

The ability to evaluate control systems and their efficiency in power generation stations, as well as the student's knowledge of the work and design of these stations to ensure the achievement of quality requirements, analyze the results, and be able to judge them in engineering to reach conclusions.	
The ability to effectively lead and manage work teams, set goals according to capabilities, properly plan to achieve them, adhere to completion dates, and manage risk and uncertainty.	Learning outcomes 7
Value	
The ability to communicate effectively orally with a group of people and in writing with various administrative levels and for various purposes.	Learning outcomes 4
The ability to recognize ethical and professional responsibilities in engineering issues and make sound judgments that take into account their consequences in the financial, environmental and societal fields on a global level.	Learning outcomes 5

9. Teaching and learning strategies
1- Method of giving lectures. 2- Student groups 3- workshops 4- Scientific trips to follow up on the practical reality of the nature of renewable energy production 5- E-learning on campus 6- Experiential learning

10. Evaluation methods
Exams, continuous assessment, reports, incentives, and feedback from students

11.education institution			
College members			
Preparing the teaching staff	Special requirements/skills	Specialization	Scientific rank

		(if any)				
lecturer	Permanent staff			private	general	
	Permanent staff				general	Assistant Professor Maitham Hussein Rashid - Master's degree
	Permanent staff				general	Assistant Professor Wissam Jalil Khudair - Ph.D
	Permanent staff				general	Professor Wathiq Nasser Hussein - Ph.D
	Permanent staff				general	Assistant Professor Sanaa Abdul Razzaq Jassim - Ph.D
	Permanent staff				general	Assistant Professor Ali Jassim Hussein - Ph.D
	Permanent staff				general	Lecture Muhammad Ali Muhammad-Ph.D
	Permanent staff				general	Assistant Professor Bashar Abed Hamza - Ph.D
	Permanent staff				general	Assistant Professor Ali Sabry Alo - Ph.D
	Permanent staff				general	Lecturer Ahmed Riyadh Radhi – Ph.D
	Permanent				general	Lecturer Ahmed Walid Hussein -

	staff					Ph.D
	Permanent staff				general	Lecturer Aws Akram Mahmoud - Ph.D
	Permanent staff				general	Assistant professor., Rusul Dawood Salman – Master's degree
	Permanent staff				general	Lecturer Abdul Khaleq Ghali - Ph.D
	Permanent staff				general	Lecturer Mohamed Abdul Dayem – Master 's degree
	Permanent staff				general	Assistant Professor Ali Jaber Abdel Hamid - Ph.D
	Permanent staff				general	Lecturer Muhannad Jaber Yasser – Master's dgree
	Permanent staff				general	Assistant Lecturer Omar Ahmed Al-Kawak - Master’s drgree
	Permanent staff				general	Lecturer Ali Muhammad Miqdad - Ph.D
	Permanent staff				general	Assistant Lecturer Ahmed Saad Jassim – Master's degree

	Permanent staff				general	Lecturer Fouad Abdel Amir Khalaf - Ph.D
	Permanent staff				general	Assistant Lecturer Dhi Saadi Naji – Master's degree

#### Professional development

##### Orienting new College members

Submit New College members to a distinguished orientation program with the support of the university by holding training courses in which old, experienced College members lecture to realize their potential as professors, researchers, and innovators, enabling them to participate and communicate in a positive environment that helps them integrate into the university community, and introduces them to the university environment, including its characteristics, basic values, and responsibilities. related to rights and performance.

##### Professional development for College members

The teaching staff is subject to a group of activities, events, meetings, and scientific training provided by the relevant university entity to provide its employees in all programs with more knowledge, skills, and techniques related to the exercise of their professional roles (teaching, scientific research, community service). Under the heading of training and Professional development to improve the skills and knowledge of College members and academic leaders in all fields that enable them to carry out their assigned tasks to the fullest extent.

#### 12.Acceptance standard

Central: A student who is accepted into universities is required to be:

1. Iraqi nationality.
2. Possessor of an Iraqi preparatory school certificate supported by certification from the General Directorate of Education in the governorate or an equivalent certificate.
3. The student must be born in 1995 onwards
4. Successful in the medical examination according to the conditions specific to each study, and the blind student (who meets the conditions for applying for appropriate humanitarian studies through central admission) will be able to apply.
5. Dedicated to study. It is not permissible to combine work and study (at the same time) in colleges and morning institutes. This includes employees of all government institutions. In order for them to continue studying in the morning, they must obtain study leave from their departments starting in accordance with the instructions in force. It is also not permissible to combine two studies. If it is proven otherwise, he must write to the Ministry to cancel his acceptance.
6. Of my graduates:
  - A- The current academic year.
  - B- The previous academic year of those who are not centrally accepted into any college or institute, and they are accepted according to the minimum limits for the year of their graduation.
7. Non-Iraqi students who hold an Iraqi preparatory certificate and are accepted centrally will be informed in writing to review the Central Admissions Department / Expatriates Division to state their exemption or claim for tuition fees in foreign currency according to the controls mentioned in Chapter Seven.

### 13.The most important sources of information about the program

The college and university website  
University guide

The most important books and resources for the department

1. Control Engineering, Uday A. Bakshi and Varsha U. Bakshi, Technical Publications, Pune
2. Control Engineering, D. Ganesh Rao and K. Channa Venkatesh, Sanguine Technical Publishers, Bangalore

### 14.Program development plan

Includes Realistic improvement plans derived from consideration of available evidence and evaluations. It may be applied for more than one year, but it is prepared and reviewed every year at the level of academic courses, programs, and educational institution.

Program skills chart															
Learning outcomes required from the programme															
Value				Skills				Knowledge				core or electiv e?	Course Name	Course Code	Year/level
C4	C3	C2	C1	B4	B3	B2	B 1	A4	A3	A2	A1				
*	*			*	*	*	*			*	*	Core	Engineering Drawing and Auto-CAD I	UOBAB030101 1	The first stage/Cha pter One
		*	*		*	*		*	*	*	*		Electrical Circuits	UOBAB030101 2	
*	*				*	*	*	*	*	*	*		Mathematics I	UOBAB030101 3	
		*	*		*	*	*	*	*	*	*		Physics	UOBAB030101 4	
		*	*		*	*	*	*	*	*	*		Fundamental of Computer	UOBAB030101 5	
				*	*	*	*	*	*	*	*		Arabic	UOBAB030101	

													Language	6	
*	*			*	*	*	*			*	*	Core	Engineering Drawing and Auto-CAD II	UOBAB030102 1	The first stage/Chapter II
		*	*		*	*	*	*	*	*	*		Engineering Mechanics	UOBAB030102 2	
*	*				*	*	*	*	*	*	*		Mathematics II	UOBAB030102 3	
*	*	*	*				*	*	*	*	*		Manufacturing Processes & Engineering Workshop	UOBAB030102 4	
*	*	*	*	*	*	*		*	*	*	*		Chemistry	UOBAB030102 5	
				*	*	*	*	*	*	*	*		English Language I	UOBAB030102 6	

- Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation

# Course description form

First stage/2024

Module Title	Engineering Drawing and Auto-CAD I		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301011			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		One
Administering Department	Energy Engineering	College	College of Engineering\Al-Musayab	
Module Leader	Qais Hatem Mohammed		e-mail	<a href="mailto:met.qais.hatem@uobabylon.edu.iq">met.qais.hatem@uobabylon.edu.iq</a>
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification		Ph.D.
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	

## Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1. Develop proficiency in <i>technical communication</i> and production of mechanical engineering drawings.</li> <li>2. Develop skills in the preparation of working and assembly mechanical drawings.</li> <li>3. <i>Develop an understanding of the properties, uses and production of materials used in the manufacture of engineering components.</i></li> <li>4. Provide knowledge of the different methods of production of engineering components.</li> <li>5. <i>Develop skills in communicating technical information using illustrations, scaled models and working drawings to solve engineering design problems.</i></li> <li>6. Develop skills in applying and drawing principles to facilitate product development and manufacture.</li> <li>7. Develop <i>proficiency</i> in the use of Computer-Aided Drafting (CAD) software, <i>instruments, media and reference materials</i> to produce engineering drawings.</li> <li>8. Develop an interest in mechanical engineering as disciplines and careers.</li> <li>9. <i>Develop the capacity for critical and creative thinking, problem-solving, leadership and cooperative behaviors through authentic learning experiences.</i></li> </ol>
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1. Know the principles of Lettering and Dimensioning.</li> <li>2. Know how to construct standard engineering curves.</li> <li>3. Know how to construct a number of different geometrical constructions.</li> <li>4. Know how to project solids in orthographic projection.</li> <li>5. Know how to use Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).</li> <li>6. Know how to use Computer-Aided Drafting software to produce drawings (different two-dimensional figures “surfaces”).</li> </ol>
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Indicative Content المحتويات الإرشادية	<p>Indicative content includes the following.[150]</p> <ul style="list-style-type: none"> <li>• Drawing Instruments and Accessories. [12 hrs.]</li> <li>• Lettering and Dimensioning Practices. [12 hrs.]</li> <li>• Geometrical Constructions. [46 hrs.]</li> <li>• Orthographic Projections. [40 hrs.]</li> <li>• Computer-Aided Drafting software (two-dimensional figures). [40 hrs.]</li> </ul>
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## 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 محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	95	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	55	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	4	5% (20)	5 and 10	LO #3, #4, #5, and #6
	Class Assignment	15	1.5% (22.5)	Continuous	All
	Home work	15	0.5% (7.5)	Continuous	LO #3, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #4
	Final Exam	3hr	40% (40)	16	All
Total assessment			100%		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Drawing instruments and accessories, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 2	Lettering and dimensioning practices, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 3	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 4	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 5	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 6	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures "different lines").
Week 7	Geometrical constructions, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 8	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 9	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 10	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 11	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 12	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 13	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 14	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 15	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
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Week 1	Drawing instruments and accessories, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 2	Lettering and dimensioning practices, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 3	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 4	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 5	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 6	Geometrical constructions, Computer-Aided Drafting software to produce drawings (user interface, one-dimensional figures “different lines”).
Week 7	Geometrical constructions, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 8	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 9	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 10	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 11	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 12	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 13	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 14	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).
Week 15	Orthographic projections, Computer-Aided Drafting software to produce drawings (different surfaces).

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering drawing, Abdul Rasoul Al Khafaf, University of Technology, Baghdad, Iraq, 1990.	Yes
Recommended Texts	Handbook of engineering drawing and AutoCAD, Mohammad Abid Muslim Altufaily, University of	Yes

	Babylon, Iraq, 2007	
Websites	<a href="https://youtu.be/zL1BA-mcjcc">https://youtu.be/zL1BA-mcjcc</a>	

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	Electrical Circuits	Module Delivery
Module Type	Core	☑ Theory
Module Code	UOBAB0301012	

ECTS Credits	6		<input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery	One	
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Mohammed Ali Al-Shuraifi	e-mail	<a href="mailto:Msb.Mohammed.Ali@uo.babylon.edu.iq">Msb.Mohammed.Ali@uo.babylon.edu.iq</a>	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor	Name (if available)	e-mail	E-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1. To study Ohm's law</li> <li>2. To study electrical circuits; series, parallel, and series-parallel in d.c.</li> <li>3. To apply a methods of analysis on d.c. circuits</li> <li>4. To apply electrical theorems on d.c. circuits</li> <li>5. To understand the sinusoidal waveforms in electrical circuits.</li> </ol>

	6. To understand the response of Capacitor, Inductor, and resistor. 7. To understand the complex numbers. 8. To perform conversion between time domain and phasor domain and vice versa. 9. To apply the methods of analysis in ac circuits 10.To apply the circuit theorems in ac circuits 11.To understand power in ac circuits
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Studying ohm's law 2. Studying types of circuits in d.c. and methods to analyze them. 3. Recognize ac components and their response; capacitor, inductor, and resistor. 4. List the various terms associated with ac electrical circuits. 5. Understand complex numbers in order to apply them in ac circuits 6. Discuss the average and the rms values. 7. Apply Kirchhoff's laws on ac circuits 8. Understand methods of analysis in ac circuits 9. Apply electrical theorems in ac circuits.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Circuit Theory</u> <ul style="list-style-type: none"> <li>• studying d.c. electrical circuits. [12 hrs]</li> <li>• analyzing d.c. electrical circuits.[13 hrs]</li> <li>• Sinusoidal waveforms, average (dc) value, effective (rms) value [8 hrs]</li> <li>• Time domain and phasor domain. [8 hrs]</li> <li>• Complex numbers: rectangular and polar phorm [8 hrs]</li> <li>• Methods of circuit analysis and their applications on ac circuits;</li> </ul>

	<p>mesh and nodal methods. [12 hrs]</p> <ul style="list-style-type: none"> <li>Electrical circuit theorems and their application on ac circuits: Superposition , Thevenin, And Norton. [12 hrs]</li> <li>Power in ac circuits: power triangle, real power, reactive power, and apparent power; impedance triangle. [12 hrs]</li> </ul>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

Strategies	<p>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.</p>
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### Student Workload (SWL)

#### الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Num ber	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuo us	All
	Report	1	10% (10)	13	LO #5, #8 and #10

Summative assessment	Midterm Exam	1hr	10% (10)	7	LO #1 - #7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Dc circuits; series , parallel , series-parallel
Week 2	Methods of analyzing d.c. circuits
Week 3	Electrical theorems
Week 4	Review of Kirchhoff's Laws on ac circuits
Week 5	Star delta and delta star conversion in ac circuits
Week 6	RLC circuits
Week 7	Mid-term Exam
Week 8	Series and parallel circuits
Week 9	Series – parallel circuits in ac circuits
Week 10	Methods of analysis in ac circuits I
Week 11	Methods of analysis in ac circuits II
Week 12	Electrical theorems in ac circuits I
Week 13	Electrical theorems in ac circuits II
Week 14	Power and power triangle
Week 15	Power , apparent power , reactive and real power
Week	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: series-parallel dc circuits
Week 2	Lab 2: Norton's theorem
Week 3	Lab 3: RLC circuits
Week 4	Lab 4: Kirchhoff's laws
Week 5	Lab 5: mesh method
Week 6	Lab 6: superposition theorem
Week 7	Lab 7: Thevenin theorem

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introductory circuit analysis by Boylestad	Yes
Recommended Texts	Introductory circuit analysis by Boylestad	Yes
Websites	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

## Grading Scheme

مخطط الدرجات

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

(50 - 100)	Good			
	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	Mathematics I			Module Delivery
Module Type	S			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOBAB0301013			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		
Administering Department			College	
Module Leader	Mohammed Abd Aldeem		e-mail	<a href="mailto:met.moh.abdaldaaem@uobabylon.edu.iq">met.moh.abdaldaaem@uobabylon.edu.iq</a>
Module Leader's Acad. Title		Assist. Lecturer	Module Leader's	MSC

		Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	None	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	<p>After completing the course, students should be able to:</p> <ol style="list-style-type: none"> <li>1) Enable the pupil to learn the concepts of mathematics and applications in his work.</li> <li>2) To study the characteristics and properties of number sets, and obtain the number systems.</li> <li>3) To understand the concept of function, to learn draw the graph of functions, to know the lists types of functions.</li> <li>4) Study the meaning of limit and continuous function.</li> <li>5) To understand the meaning of derivative function and applications.</li> <li>6) Study the transcendental function.</li> <li>7) Study the Unit vector, vector equation, cross product, dot product.</li> <li>8) To knows the meaning of complex number.</li> </ol>

<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1) Describe the characteristics and properties of number sets, and obtain the number systems.</li> <li>2) Describe and State the concept of function, draw the graph of functions, the lists types of functions.</li> <li>3) To understands the meaning of limit and continuous function.</li> <li>4) To knows the meaning of derivative function and applications.</li> <li>5) Describe the transcendental function.</li> <li>6) Describe the matrix and its operations and to know the determent of its.</li> <li>7) Describe the Unit vector, vector equation, cross product, dot product.</li> <li>8) To understands the meaning of complex number.</li> </ol>
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Type of sets, type of interval, Cartesians plain. The domain and rang of functions, even and odd functions. Drawing curved function, shifting the graph. limit from the left and right. [ 20 hr]</li> <li>• The concept of continuous function, Algebraic operations on continuous functions. Methods of derivation, the chain rule. Applications on derivatives. Kind of exponential functions. Types of trigonometric functions. The inverse of the trigonometric functions. Kind of Hyperbolic functions. [20 hr]</li> <li>• Types of matrices, operations on matrices. Use matrices in solving linear systems of equations. Meaning vector, algebraic properties of vectors. Vector equation, cross product, dot product. Properties of complex numbers, the representation of the complex number. [ 20 hr]</li> </ul>

<p>Learning and Teaching Strategies</p> <p>استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>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,</p>

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

#### Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

#### Module Evaluation

تقييم المادة الدراسية

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

#### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	System numbers.
Week	The functions and its kinds.

2	
Week 3	The graph of the function.
Week 4	Limit function.
Week 5	Continuous functions.
Week 6	Derivatives.
Week 7	Applications on derivatives. (Mid-term Exam)
Week 8	Exponential functions.
Week 9	The inverse trigonometric functions.
Week 10	Hyperbolic functions.
Week 11	Matrices and their types.
Week 12	Solving systems of linear equations.
Week 13	Vectors.
Week 14	The operations on the Vector.
Week 15	Complex numbers.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	George B. Thomas Jr, Weir Joel R. Hass 'Calculus' (V.12), 2014.	Yes
Recommend ed Texts	1. Haward Anton" Calculus and analytic geometry". 2. Schoms series " Theory and problems of calculus".	No
Websites		

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

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

Module Information معلومات المادة الدراسية		
Module Title	Physics	Module Delivery
Module Type	S	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOBAB0301014	
ECTS Credits	5	
SWL (hr/sem)	125	

Module Level	UGI	Semester of Delivery	One
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Ali Mohammed Ijam	e-mail	<a href="mailto:ali.ijam@uobabylon.edu.iq">ali.ijam@uobabylon.edu.iq</a>
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name	None	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

#### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

#### Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1. Analyze the atomic structure of matter at its most fundamental.</li> <li>2. Recognize the state of matter and its properties.</li> <li>3. Understand the forms of energy.</li> <li>4. Solve problems that call for the application of conservation of energy.</li> <li>5. Know the classification of the semiconductors and the mechanism behind them.</li> <li>6. Explain the basic properties of light and describe some of its applications in engineering.</li> </ol>
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1. Understanding the basic concepts and definitions is important in any field of study.</li> <li>2. Learning the properties of individual atoms and molecules, as well as how they interact with each other.</li> <li>3. knowing the physical and chemical properties of each state, such as gas, liquid, and solid, as well as understanding how the atoms and molecules interact with each other in the various states.</li> <li>4. Be familiar with how the forms of energy interact with one another and how they are used.</li> <li>5. Understanding how energy can be converted from one form to another as well as familiarity with the equations involved.</li> <li>6. Learning how semiconductors are classified and what the mechanisms are behind each type of semiconductor.</li> <li>7. Applying the light fundamental principles and how engineers are able to create complex technological solutions.</li> </ol>
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Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Some basic concepts and definitions, how atomic structure is formed and interatomic bonding energy and classification, properties of matter, state of matter, energy sources, kinetic energy, and work. [ 23 hr]</li> <li>• Potential energy, thermal properties of matter, how heat and law of thermodynamics applied, what are the fluid characteristics, electric field, and potential. [22 hr]</li> <li>• Classifications of Conductor and insulator materials, semiconductors, propagation of light and optics characteristics, and elements of solid-state physics. [ 15 hr]</li> </ul>
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### Learning and Teaching Strategies استراتيجيات التعلم والتعليم

Strategies	<p>This module will be taught in such a way that students will be compelled to participate in the exercises and their critical thought skills will be refined and expanded through participation. Classes and interactive tutorials will be used in order to reach this goal, as well as considering the types of simple experiments involving sampling activities that the learners might find interesting as well. The module will also include group activities, which will encourage collaboration and</p>
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the exchange of ideas. This will help to create an engaging learning experience for the students and will also help them to develop their communication skills.

### Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

### Module Evaluation

تقييم المادة الدراسية

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

### Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Some basic concepts and definitions
Week 2	Atomic structure and interatomic bonding

Week 3	Properties of matter
Week 4	State of matter
Week 5	Energy sources
Week 6	Kinetic Energy and work
Week 7	Potential energy (Mid-term Exam)
Week 8	Thermal properties of matter
Week 9	Heat and law of thermodynamics
Week 10	Fluids
Week 11	Electric field and potential
Week 12	Conductor and insulator materials
Week 13	Semiconductors
Week 14	Lights and optics
Week 15	Elements of solid-state physics
Week 16	Preparatory week before the final Exam

#### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Photon energy
Week 2	Lab 2: Data analysis for calculating Plank's constant
Week 3	Lab 3: Energy distribution
Week 4	Lab 4: Electrical properties of insulated materials
Week 5	Lab 4: Light interaction with matter

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Halliday, D., Resnick, R., & Walker, J. (2013). Fundamentals of physics. John Wiley & Sons.	Yes
Recommended Texts	Radi, H., & Rasmussen, J. O. (2013). Principles of physics. Springer.	Yes
Websites		

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

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

Module Information معلومات المادة الدراسية		
Module Title	Fundamental of Computer	Module Delivery

Module Type	B		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301015			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	UGI	Semester of Delivery		One
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Omar Ahmed Naeem		e-mail	<a href="mailto:msb.omar.alkawak@uobabylon.edu.iq">msb.omar.alkawak@uobabylon.edu.iq</a>
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification		Msc
Module Tutor			e-mail	
Peer Reviewer Name	None	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	
Relation with other Modules العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	None	Semester		
Co-requisites module	None	Semester		
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية				
Module Objectives أهداف المادة الدراسية	The computer science curriculum aims to introduce the student to computer science and the skills related to this subject. The main purpose of the course is to introduce the student to an idea about the computer and its components and how each of its parts works through an explanation of the input units, the central processing unit, the input units, the storage units, and the types of operating systems and programs Microsoft Office and how to connect to the Internet and identify and protect against virus			

risks.

Module Learning  
Outcomes  
مخرجات التعلم للمادة  
الدراسية

A- Cognitive objectives

A1- During the school year, the student learns the basics of computer science.

A2- Enabling the student to know the main principles of the most prominent concepts of computer science, their sources and types, and the mechanisms used for their purpose.

A 3- Enabling the student to know all the basics that he uses in the scientific subject

A 4- Definition of computer, its development history and generations

A 5- An explanation of the computer system with all its elements and systems

A6- Introducing the student to the input unit, its principles of work, its types, and the work of the basic office programs

A 7- The central processing unit, its parts, how each part works, the output unit, its working principles and types

b- The skill objectives of the subject

B1 - Familiarity with developments in the field of computers

B2 - Familiarity with computer components

B3 - Enabling the student to understand every part of the computer, how it works, and the work of the basic office programs

B4- Giving the student an opportunity to explain a small part of the class to his classmates to enhance his self-confidence.

B5- Solve a small part of the homework to urge the students to complete the solution, give class assignments, and make groups to solve these assignments

Indicative  
Contents

المحتويات الإرشادية

The students will be able to identify the values, trends and patterns of behavior that uphold the ethics of the profession and work to adhere to them after graduation.

1-Urging the student to understand the objective of studying the subject in general.

2-Urging the student to think about how to develop oneself in the field of computers.

3 -Making the student able to deal with the computers and how to use the programs in accordance with the rules and regulations of engineering.

استراتيجيات التعلم والتعليم Learning and Teaching Strategies

Strategies

1. The teacher prepares lectures on the subject in soft electronic form and

presents them to the students.

2. The teacher gives lectures in detail.
3. the teacher requests periodic reports and homework on the basic subjects of the subject.
4. Academic methods and lectures
5. Dialogue modalities
6. Use projectors
7. Providing the student with basic and secondary topics related to computer work
8. Translating theoretical topics and vocabulary related to computer technologies
9. Requiring the student to follow developments in computer science

#### Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ 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	51	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

#### Module Evaluation تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3 and 15	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 15	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative	Midterm	2hr	10% (10)	7	LO #1 - #7

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

### المناهج الاسبوعي النظري Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Computers: their generations, components: hardware and software
Week 2	(Input and output) (system software and application software).
Week 3	Windows operating system Windows concept, advantages, basic requirements
Week 4	Windows The concept of a window for any program and identifying its main components, folders, and files and how to deal with them
Week 5	Windows Learning about My Computer and Control Panel components
Week 6	Output devices such as (printer and ways to deal with it)
Week 7	Word (document building and formatting methods)
Week 8	Word (document building and formatting methods)
Week 9	Midterm Exam
Week 10	Excel program (data building, processing, and ways to extract it)
Week 11	Excel program (data building, processing, and ways to extract it)
Week 12	PowerPoint program (building and coordinating presentations)
Week 13	PowerPoint program (building and coordinating presentations)
Week 14	The concept of computer viruses: how to infect, types and treatment
Week 15	The Internet: a definition of how to deal with the Internet, Internet browsers, web searches and e-mail
Week 16	Preparatory week before the final Exam

### المناهج الاسبوعي للمختبر Delivery Plan (Weekly Lab. Syllabus)

V	Material Covered
Week 1	Computers: their generations, components: hardware and software
Week 2	(Input and output) (system software and application software).
Week 3	Windows operating system Windows concept, advantages, basic requirements
Week 4	Windows The concept of a window for any program and identifying its main components, folders, and files and how to deal with them
Week 5	Windows Learning about My Computer and Control Panel components
Week 6	Output devices such as (printer and ways to deal with it)
Week 7	Word (document building and formatting methods)
Week 8	Word (document building and formatting methods)
Week 9	Midterm Exam

Week 10	Excel program (data building, processing, and ways to extract it)
Week 11	Excel program (data building, processing, and ways to extract it)
Week 12	PowerPoint program (building and coordinating presentations)
Week 13	PowerPoint program (building and coordinating presentations)
Week 14	The concept of computer viruses: how to infect, types and treatment
Week 15	The Internet: a definition of how to deal with the Internet, Internet browsers, web searches and e-mail
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Computer basics and office applications / 4 parts - Prof. Dr. Ghassan Hamid Abdel Majeed and Dr. Ziyad Muhammad Abboud and others.	No
Recommended Texts	1. William Stallings, Computer Organization & Architecture, Sixth edition, Person Education 2. Donald H. Sandersz, Computer today, Second edition, McGraw –hill 3. Lectures provided by the subject teacher 4. Books available in the college library	No
Websites		

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

	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

Module Information معلومات المادة الدراسية					
Module Title	Arabic Language		Module Delivery		
Module Type	B		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar		
Module Code	UOBAB0301016				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		UGI	Semester of Delivery		One
Administering Department		Type Dept. Code	College	Type College Code	
Module Leader	Noor Mohammed Jasim		e-mail	<a href="mailto:msb.noor.mohammed@uobabylon.edu.iq">msb.noor.mohammed@uobabylon.edu.iq</a>	

Module Leader's Acad. Title	Assist lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/202 3	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 Objecti ves  أهداف المادة الدراسية	<p>1. اتقان اللغة: الهدف الرئيسي من أهداف الوحدة في اللغة العربية هو مساعدة المتعلمين على تطوير الكفاءة في القراءة والكتابة والتحدث والاستماع إلى اللغة العربية. وهذا يشمل تحسين المفردات والقواعد والنطق ومهارات الفهم.</p> <p>2. مهارات الاتصال: هدف آخر هو تعزيز قدرة المتعلمين على التواصل الفعال باللغة العربية. يتضمن ذلك التركيز على الاستخدام العملي للغة ، مثل الانخراط في المحادثات والتعبير عن الآراء وطرح الأسئلة والإجابة عليها والمشاركة في أنشطة التواصل المختلفة.</p> <p>3. التفاهم الثقافي: قد تهدف أهداف الوحدة أيضًا إلى تعزيز التفاهم الثقافي والوعي بالعالم العربي. ويشمل ذلك تعريف المتعلمين بالعادات والتقاليد والأدب والتاريخ والجوانب الاجتماعية المرتبطة بالدول الناطقة باللغة العربية.</p> <p>4. استخدام اللغة الوظيفية: يمكن أن يكون الهدف من أهداف الوحدة هو تزويد المتعلمين بالمهارات اللغوية اللازمة لأداء مهام أو وظائف محددة باللغة العربية. قد يتضمن ذلك تعلم المفردات والعبارات المتعلقة بموضوعات مثل السفر والتسوق وتناول الطعام والرعاية الصحية والتفاعلات التجارية.</p> <p>5. الدقة اللغوية: قد تؤكد أهداف الوحدة على تطوير الدقة النحوية والاستخدام السليم للغة. يتضمن ذلك تعلم قواعد وهيكل قواعد اللغة العربية ، وبناء الجملة ، والصرف لإنتاج جمل متماسكة وخالية من الأخطاء.</p> <p>6. التعلم المستقل: هدف آخر هو تعزيز قدرة المتعلمين على دراسة واستكشاف اللغة العربية بشكل مستقل خارج الفصل الدراسي. يمكن أن يشمل ذلك تشجيع التعلم الذاتي ، وتوفير الموارد لمزيد</p>

من الممارسة ، وتطوير استراتيجيات لاكتساب اللغة بشكل فعال.

7. التقييم والتقدم: قد تهدف أهداف الوحدة أيضًا إلى تقييم تقدم المتعلمين وتقديم ملاحظات حول مهاراتهم في اللغة العربية. يسمح هذا لكل من المتعلمين والمدرسين بتقييم إنجازاتهم وتحديد مجالات التحسين

Module  
Learning  
Outcomes

مخرجات  
التعلم  
للمادة  
الدراسية

1. الفهم السمعي: إظهار القدرة على فهم وفهم اللغة العربية المنطوقة عبر مجموعة من الموضوعات والسياقات ، بما في ذلك المحادثات والعروض التقديمية والتسجيلات الصوتية.
2. الفهم القرائي: إظهار القدرة على قراءة وفهم النصوص العربية المكتوبة بمستويات مختلفة من الصعوبة ، مثل المقالات والقصص والمواد الأصلية ، واستخراج المعلومات ذات الصلة.
3. إتقان التحدث: التواصل الفعال باللغة العربية من خلال التعبير عن الأفكار والآراء والمعلومات في شكل منطوق. الانخراط في المحادثات والمشاركة في المناقشات وتقديم العروض باستخدام المفردات والقواعد والنطق المناسب.
4. إتقان الكتابة: إنتاج نصوص مكتوبة باللغة العربية ، مثل المقالات والتقارير ورسائل البريد الإلكتروني والرسائل ، بوضوح وتماسك ودقة نحوية. قم بتطبيق اصطلاحات اللغة المناسبة ، بما في ذلك التهجئة وعلامات الترقيم وبنية الفقرة.
5. المفردات والقواعد: إظهار مجموعة واسعة من المفردات وفهم قواعد قواعد اللغة العربية وهيكلها. استخدم المفردات المناسبة للتعبير عن الأفكار والأفكار بدقة ، وتطبيق القواعد النحوية بشكل فعال في الاتصال الكتابي والمنطوق.
6. الوعي الثقافي: إظهار فهم للجوانب الثقافية للبلدان الناطقة باللغة العربية ، بما في ذلك العادات والتقاليد والأعراف الاجتماعية. التعرف على الاختلافات الثقافية واحترامها وتطبيق المعرفة الثقافية بشكل مناسب في استخدام اللغة.
7. الطلاقة اللغوية: تنمية الطلاقة في اللغة العربية من خلال التحدث والرد بشكل عفوي ، دون تردد مفرط. أظهر القدرة على الحفاظ على المحادثة والتفاوض بشأن المعنى والتعامل مع مواقف الاتصال المختلفة بثقة.
8. التفكير النقدي: تطبيق مهارات التفكير النقدي لتحليل وتقييم النصوص العربية ، بما في ذلك المقالات الإخبارية ، والأعمال الأدبية ، والمواد الثقافية. صياغة الآراء ودعمها ، وإقامة الروابط ، وإظهار الفهم وراء مستوى الفهم السطحي.
9. التعلم المستقل: تحمل مسؤولية التعلم الذاتي من خلال استخدام الموارد والاستراتيجيات لتطوير إتقان اللغة العربية. إظهار القدرة على الانخراط في التعلم الذاتي للغة والبحث عن فرص للتحسين المستمر.
10. التواصل بين الثقافات: الانخراط في التواصل الفعال بين الثقافات من خلال إظهار فهم الاختلافات

الثقافية ، وتكييف استخدام اللغة وفقاً لذلك ، وإظهار الاحترام لوجهات النظر المتنوعة.

<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>المبتدأ والخبر أن يكون الطالب جملة فيها مبتدأ وخبر , التصويبات اللغوية أن يتعرف الطالب على التصويبات اللغوية علامات الترقيم أن يستعمل الطالب علامات الترقيم وجوب فتح همزة ان وكسرها أن يتعرف الطالب موقع فتح همزة ان وكسرها الادب القصصي أن يتعرف الطالب على الادب القصصي الادب العربي زيادة الثروة اللغوية للطالب الشعر الحر والشعر العمودي أن يفرق الطالب بين الشعر العمودي والحر العدد أن يكتب الطالب العدد بشكل صحيح حافظ ابراهيم أن يترجم الطالب لحياة الشاعر حافظ ابراهيم بدر شاكر السياب أن يترجم الطالب لحياة الشاعر بدر شاكر السياب الجواهري أن يترجم الطالب لحياة الشاعر الجواهري همزة القط أن يستخرج الطالب همزة القط</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<p>Strategies</p>	<p>النهج التواصلي: التأكيد على استخدام اللغة العربية للتواصل الهادف. شجع المتعلمين على الانخراط في محادثات حقيقية ولعب الأدوار وأنشطة التواصل التي تعكس مواقف الحياة الواقعية. توفير فرص للتفاعل الهادف باللغة العربية لتطوير مهارات التحدث والاستماع.</p> <p>المهارات المتكاملة: دمج المهارات اللغوية الأربع (الاستماع والتحدث والقراءة والكتابة) في عملية التدريس والتعلم. قم بإنشاء أنشطة تسمح للمتعلمين بممارسة هذه المهارات وتعزيزها في وقت واحد. على سبيل المثال ، قراءة نص بصوت عالٍ ومناقشته ثم كتابة رد.</p> <p>مواد أصلية: دمج المواد العربية الأصيلة ، مثل المقالات الإخبارية والأدب والأغاني ومقاطع الفيديو والبودكاست ، في المناهج الدراسية. تعرض هذه المواد المتعلمين لاستخدام اللغة الواقعية والجوانب الثقافية للمجتمعات الناطقة باللغة العربية ، مما يعزز كفاءتهم اللغوية وفهمهم الثقافي.</p> <p>التعلم السياقي: تعليم اللغة العربية في سياقات ذات مغزى تتعلق بحياة المتعلمين أو مجالات اهتمامهم. استخدم الموضوعات والموضوعات والمواقف ذات الصلة لجعل تجربة تعلم اللغة أكثر جاذبية ووثوقية للمتعلمين.</p> <p>مناهج متعددة الوسائط: استخدم مجموعة متنوعة من الموارد والوسائط لتلبية أنماط التعلم المختلفة. اجمع بين الأنشطة البصرية والسمعية والحركية لتعزيز تعلم اللغة. قم بدمج أدوات الوسائط المتعددة وتطبيقات تعلم اللغة والموارد عبر الإنترنت والأنشطة التفاعلية لإنشاء بيئة تعليمية جذابة.</p> <p>التعلم القائم على المهام: تنظيم تعلم اللغة حول المهام الهادفة التي تتطلب من المتعلمين استخدام اللغة العربية لتحقيق أهداف محددة. يمكن أن تشمل المهام التخطيط لرحلة أو وصف تجربة شخصية أو المشاركة في مناقشة. يعزز هذا النهج استخدام اللغة ومهارات حل المشكلات</p>
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### Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا

<p>Structured SWL (h/sem)</p> <p>الحمل الدراسي المنتظم للطالب خلال الفصل</p>	<p>30</p>	<p>Structured SWL (h/w)</p> <p>الحمل الدراسي المنتظم للطالب أسبوعيا</p>	<p>2</p>
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Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعياً	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	أن يكون الطالب جملة فيها مبتدأ وخبر
Week 2	أن يتعرف الطالب على التصويبات اللغوية
Week 3	أن يستعمل الطالب علامات الترقيم
Week 4	أن يتعرف الطالب موقع فتح همزة ان وكسرها
Week 5	أن يتعرف الطالب على الادب القصصي
Week 6	الامتحان الفصلي
Week 7	زيادة الثروة اللغوية للطلاب
Week 8	أن يفرق الطالب بين الشعر العمودي والحر
Week 9	أن يكتب الطالب العدد بشكل صحيح
Week 10	أن يترجم الطالب لحياة الشاعر حافظ ابراهيم
Week 11	أن يترجم الطالب لحياة الشاعر بدر شاكر السياب
Week 12	أن يترجم الطالب لحياة الشاعر الجواهري

Week 13	أن يستخرج الطالب همزة القطع
Week 14	أن يستعمل الطالب همزة الوصل
Week 15	أن يكون الطالب جملة فيها مبتدأ وخبر
Week 16	الامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library ?
Required Texts	<p>1- عليوي ، سعد حسن ، النحو الوسيط ، ط1 ، دار صفاء للنشر والتوزيع ، عمان - الاردن ، 2015.</p> <p>2- النحوي ، ابن عقيل ، شرح ابن عقيل على الفية ابن مالك ، ط1 ، دار الكتب العلمية ، بيروت - لبنان ، 2006.</p> <p>ضيف ، شوقي ، تاريخ الادب العربي ، ط2، دار المعارف للطباعة ، القاهرة ، 2006.</p>	Yes
Recommended Texts	<p>أ) الانصاري ، ابن هشام ، شرح قطر الندى وبل الصدى ، ط1 ، دار الهلال للنشر- والتوزيع ، بيروت - لبنان ، 2009.</p> <p>ب) السامرائي ، فاضل صالح ، معاني النحو ، دار ابن كثير للنشر- والتوزيع ، بيروت - لبنان ، 2017.</p>	No
Websites	وكيبيديا ، منتديات اللغة العربية	

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	FX – Fail	راسب (قيد)	(45-49)	More work required but credit

(0 – 49)		(المعالجة)		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	Engineering Drawing and Auto-CAD II			Module Delivery	
Module Type	S			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301021				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		UGI	Semester of Delivery		Two
Administering Department		Energy Engineering	College	College of Engineering\Al-Musayab	
Module Leader	Qais Hatem Mohammed		e-mail	<a href="mailto:met.qais.hatem@uobabylon.edu.iq">met.qais.hatem@uobabylon.edu.iq</a>	
Module Leader's Acad. Title		Lecturer	Module Leader's Qualification		Ph.D.
Module Tutor			e-mail		

Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1) Develop proficiency in <i>technical communication</i> and production of mechanical engineering drawings.</li> <li>2) Develop skills in the preparation of working and assembly mechanical drawings.</li> <li>3) <i>Develop an understanding of the properties, uses and production of materials used in the manufacture of engineering components.</i></li> <li>4) Provide knowledge of the different methods of production of engineering components.</li> <li>5) <i>Develop skills in communicating technical information using illustrations, scaled models and working drawings to solve engineering design problems.</i></li> <li>6) Develop skills in applying and drawing principles to facilitate product development and manufacture.</li> <li>7) Develop <i>proficiency</i> in the use of Computer-Aided Drafting (CAD) software, <i>instruments, media and reference materials</i> to produce engineering drawings.</li> <li>8) Develop an interest in mechanical engineering as disciplines and careers.</li> <li>9) <i>Develop the capacity for critical and creative thinking, problem-solving, leadership and cooperative behaviors through authentic learning experiences.</i></li> </ol>

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ul style="list-style-type: none"> <li>• Know how to represent solids in pictorial projections.</li> <li>• Know how to produce working and assembly drawings.</li> <li>• Know how to use Computer-Aided Drafting software to produce drawings (different three-dimensional figures "solid figures").</li> <li>• Know how to project auxiliary views.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Know how to prepare drawings with sectional views.</li> </ul>
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.[150]</p> <ul style="list-style-type: none"> <li>• Represent solids in pictorial projections. [20 hrs.]</li> <li>• Assembly drawings. [40 hrs.]</li> <li>• Project auxiliary views. [20 hrs.]</li> <li>• Prepare drawings with sectional views. [30 hrs.]</li> <li>• Computer-Aided Drafting software (three-dimensional figures). [40 hrs.]</li> </ul>

### 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.
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### Student Workload (SWL)

#### الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	80	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	70	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	5% (20)	5 and 10	LO #2, #4, and two in #5
	Class Assignment	15	1.5% (22.5)	Continuous	All
	Home work	15	0.5% (7.5)	Continuous	LO #3, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #4
	Final Exam	3hr	40% (40)	16	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Represent solids in pictorial projections, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 2	Represent solids in pictorial projections, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 3	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 4	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 5	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 6	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 7	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 8	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 9	Project auxiliary views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 10	Project auxiliary views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 11	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).

Week 12	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 13	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 14	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 15	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Represent solids in pictorial projections, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 2	Represent solids in pictorial projections, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 3	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 4	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 5	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 6	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 7	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 8	Assembly drawings, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 9	Project auxiliary views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 10	Project auxiliary views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 11	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 12	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week	Prepare drawings with sectional views, Computer-Aided Drafting software to

13	produce drawings (three-dimensional).
Week 14	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).
Week 15	Prepare drawings with sectional views, Computer-Aided Drafting software to produce drawings (three-dimensional).

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering drawing, Abdul Rasoul Al Khafaf, University of Technology, Baghdad, Iraq, 1990.	Yes
Recommended Texts	Handbook of engineering drawing and AutoCAD, Mohammad Abid Muslim Altufaily, University of Babylon, Iraq, 2007	Yes
Websites	<a href="https://youtu.be/eIPhvDcMx-w">https://youtu.be/eIPhvDcMx-w</a>	

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	Engineering Mechanics		Module Delivery
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOBAB0301022		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGI	Semester of Delivery	Two
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Bashar Abid Hamza	e-mail	<a href="mailto:met.basher.abid@uobabylon.edu.iq">met.basher.abid@uobabylon.edu.iq</a>
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

### Module Aims, Learning Outcomes and Indicative Contents

#### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	<p>After completing the course, students should be able to</p> <ol style="list-style-type: none"> <li>1. Describe the characteristics and properties of forces and moments, analyze the force system, and obtain the resultant and equivalent force systems,</li> <li>2. State the conditions of equilibrium, draw free body diagrams (FBDs), analyze and solve problems involving rigid bodies in equilibrium,</li> <li>3. Draw FBDs, analyze and solve structural and mechanical systems of rigid bodies in equilibrium,</li> <li>4. Draw FBDs, analyze and solve structural and mechanical systems with distributed loads in equilibrium,</li> <li>5. Describe the mechanism and characteristics of dry friction, draw FBDs, analyze and solve structural and mechanical systems with friction in equilibrium,</li> <li>6. Describe the physical meanings of idealized problems in Statics and approximate real-life Situations to idealized problems</li> <li>6- Describe the equation of kinematics and solve problems.</li> <li>7- Describe and analysis the equation of kinetics and solve problems.</li> </ol>
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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1- To understand Principle engineering mechanics</li> <li>2- enable student to study and analyze force systems</li> <li>3- enable student to Modeling of supports and free body diagram</li> <li>4- Enable student to study equilibrium of force systems applied on bodies.</li> <li>5- Enable student to locate the centroid of area.</li> <li>6- Enable student to determine the moment of inertia of area.</li> <li>7- Enable student to analyze and solve structural and mechanical systems with friction in equilibrium.</li> <li>8- Enable student to compare between kinematics and kinetics of particles</li> <li>9- Enable student to study and analysis kinematics (rectilinear/curvilinear motion).</li> <li>10 - Enable student to study and analyze the kinetics of particles</li> </ol>
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	(equation of motion, work and energy , and impulse and momentum)
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Introduction, perpendicular components of forces, moment and couple of forces and resultant of force system. [16hrs.]</li> <li>• Modeling of supports, Draw free body diagram. [ 5hrs.]</li> <li>• Determination Centroid of lines, area, and volume using integration. [ 5hrs.]</li> <li>• Determination Centroid of lines, area, and volume using tables. [ 3 hrs.]</li> <li>• Determination moment of inertia using integration. [ 3hrs.]</li> <li>• Determination moment of inertia using tables. [ 3hrs.]</li> <li>• Evaluation of friction forces.[ 5hrs.]</li> </ul>

### 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 types of simple experiments involving some sampling activities that are interesting to the students.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150
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Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	2 and 4	LO #1 and #2
	Assignments	2	5% (5)	4 and 8	LO #1 - #5
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2hr	30% (30)	4 and 8	LO #1 - #5
	Final Exam	3hr	40% (40)	16	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction
Week 2	Force 2D (perpendicular components)
Week 3	Force 2D (moment and couple)
Week 4	Force 2D (resultant)
Week 5	Equilibrium
Week 6	Centroid lines, area, and volume
Week 7	Centroid lines, area, and volume
Week 8	Moment of inertia
Week 9	Moment of inertia
Week 10	Friction
Week 11	Dynamics –Kinematics of particles –(1) –Rectilinear motion
Week 12	(2) Curvilinear Motion
Week 13	Kinetics of Particles –(1) Equation of Motion
Week	(2)- Work and Energy

14	
Week 15	3- Impulse and Momentum.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	J. L. Meriam and L. G. Kraige, 'Engineering Mechanics: Statics (V.1), 7th edition, Wiley 2012.	Yes
Recommended Texts	R. C. Hibbeler, Engineering Mechanics: STATICS (SI Edition), 14th edition, Prentice Hall 2016.	No
Websites		

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

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

### Module Information

معلومات المادة الدراسية

Module Title	Mathematic II		Module Delivery	
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301022			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery	Two	
Administering Department		College		
Module Leader	Mohammed Abd Aldeem	e-mail	<a href="mailto:met.moh.abdaldaaem@uobabylon.edu.iq">met.moh.abdaldaaem@uobabylon.edu.iq</a>	
Module Leader's Acad. Title	Assist . Lecturer	Module Leader's Qualification	MSC	
Module Tutor		e-mail		
Peer Reviewer Name	None	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	

### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Mathematic I	Semester	One
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>After completing the course, students should be able to:</p> <ol style="list-style-type: none"> <li>1) Enable the pupil to learn the concepts of mathematics and applications in his work.</li> <li>2) To study the Definite Integrals, Properties of definite integrals.</li> <li>3) To understand methods of integrations: Integration by parts, by Tabular, by Partial Fractions.</li> <li>4) Study the applications of the definite integral: 1- Area under the curve, 2- Area between two curves, 3-Area in polar co-ordinate.</li> <li>5) To understand the Numerical methods for evaluating definite integrals: I- Trapezoidal rule, II- Simpson's rule.</li> <li>6) Study the Sequences: convergent sequence: Limits that arise frequently.</li> <li>7) Study the infinite series: converges series, diverges series, Kind of series: 1- Geometric Series, P-Series.</li> <li>8) To knows the Tests for converges of series:1-Integral Test, 2-Ratio Test, 3- RootTest, Taylor and Maclaurin series.</li> </ol>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1) Describe the characteristics and Properties of definite integrals.</li> <li>2) Describe and State the concept of methods of integrations: Integration by parts, by Tabular, by Partial Fractions.</li> <li>3) To understands the applications of the definite integral: 1- Area under the curve, 2- Area between two curves, 3-Area in polar co-ordinate.</li> <li>4) To knows the meaning of the Numerical methods for evaluating definite integrals:               <ol style="list-style-type: none"> <li>i) Trapezoidal rule, ii) Simpson's rule.</li> </ol> </li> <li>5) Describe the Sequences: convergent sequence: Limits that arise frequently.</li> <li>6) Describe the Infinite series: converges series, diverges series, Kind of series: 1-Geometric Series, 2- P-Series.</li> <li>7) Describe the Unit vector, vector equation, cross product, dot product.</li> <li>8) To understands the Tests for converges of series: 1-Integral Test, 2-Ratio Test, 3-RootTest, To knows the meaning of Taylor and Maclaurin series.</li> </ol>
<p>Indicative Content</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Integration: Definite Integrals, Properties of definite integrals, Methods of integrations: Integration by parts, by Tabular, by Partial Fractions, Integration</li> </ul>

s المحتويات الإرشادية	<p>by reduction formulas, Integrating powers, Integration by Trigonometric Substitutions, Integration of irrational function, Integration of rational function of Trigonometric, Applications of the definite integral:1- Area under the curve, 2- Area between two curves, 3-Area in polar co-ordinate. [ 20 hr]</p> <ul style="list-style-type: none"> <li>• 4-Volumes By Disks: <i>i</i>) around <math>x - axis</math>, <i>ii</i>) around <math>y - axis</math>, 5- Volumes By Washers: <i>i</i>) around <math>x - axis</math>, <i>ii</i>) around <math>y - axis</math>, 6- Volumes By Cylindrical Shells: <i>i</i>) about <math>x - axis</math>, <i>ii</i>) about <math>y - axis</math>, Volume in polar co-ordinates system, Length of a plane curve, Area of a surface of revolution, Area of the surface in polar co-ordinates system. [20 hr]</li> <li>• Area of a surface of revolution, Area of the surface in polar co-ordinates system, Multiple Integrals: Double Integrals, Triple Integrals, Numerical methods for evaluating definite integrals: <i>i</i>) Trapezoidal rule, <i>ii</i>) Simpson's rule, Sequences: convergent sequence: Limits that arise frequently, Infinite series: converges series, diverges series, Kind of series:1-Geometric Series, P-Series, Tests for converges of series:1-Integral Test, 2-Ratio Test, 3-RootTest, Taylor and Maclaurin series. [ 20 hr]</li> </ul>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategi es	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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

### Module Evaluation

تقييم المادة الدراسية

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

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Integration: Definite Integrals, Properties of definite integrals.
Week 2	Methods of integrations.
Week 3	Methods of integrations.
Week 4	Methods of integrations.
Week 5	Applications of the definite integral.
Week 6	Volumes By Disks.
Week 7	Volumes By Washers. (mid-term Exam)
Week 8	Volumes By Cylindrical Shells.
Week 9	Volume in polar co-ordinates system, Length of a plane curve.
Week 10	Area of a surface of revolution, and in polar co-ordinates system.
Week 11	Multiple Integrals.
Week 12	Numerical methods for evaluating definite integrals.
Week 13	Sequences.
Week 14	Infinite series.
Week 15	Taylor and Maclaurin series.
Week 16	Preparatory week before the final Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	George B. Thomas Jr, Weir Joel R. Hass 'Calculus' (V.12), 2014.	Yes
Recommended Texts	1. Haward Anton" Calculus and analytic geometry". 2. Schoms series "Theory and problems of calculus" .	No
Websites		

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

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

### Module Information

معلومات المادة الدراسية

Module Title	Manufacturing Processes & Engineering Workshop			Module Delivery	
Module Type	S			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301024				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UGI	Semester of Delivery		Two
Administering Department		Type Dept. Code	College	Type College Code	
Module Leader	Ahmed Saad Jasim		e-mail	<a href="mailto:ahmed.saad.jas@uobabylon.edu.iq">ahmed.saad.jas@uobabylon.edu.iq</a>	
Module Leader's Acad. Title		Assist. Lecture	Module Leader's Qualification		MSC
Module Tutor	None		e-mail	E-mail	
Peer Reviewer Name	None		e-mail	E-mail	
Scientific Committee Approval Date		01/06/2023	Version Number		1.0

### Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

### Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1) To study the machining operations and machine tools that include: turning and related operations, drilling and related operations, milling, grinding and other abrasive processes, and other machining operations.</li> <li>2) To understand the bulk deformation processes in metal working that include: rolling and related operations, forging and related operations, extrusion, and wire and bar drawing and also study the sheet metal working / cutting operations, bending operations, and drawing.</li> <li>3) Study the joining and assembly processes that include: fundamentals of welding, arc welding, resistance welding, oxyfuel gas welding, soldering, and brazing.</li> <li>4) To learn the fundamentals of metal casting, and metal casting processes.</li> </ol>
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<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Describe turning and related operations</li> <li>2. Learn drilling and related operations</li> <li>3. Give information about milling</li> <li>4. Define grinding and other abrasive processes</li> <li>5. Give information about other machining operations: shaping and planning, broaching, and sawing</li> <li>6. Know the rolling and related operations</li> <li>7. Learn about of forging and related operations</li> <li>8. Give information about extrusion</li> <li>9. Study wire and bar drawing</li> <li>10. Give information about sheet metal working / cutting operations, bending operations, and drawing</li> <li>11. Define fundamentals of welding</li> <li>12. Know the arc welding</li> <li>13. Define resistance welding, and ox fuel gas welding</li> <li>14. Study soldering, and brazing</li> </ol>
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	15. Give information about fundamentals of metal casting, metal casting processes.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Study the machining operations and machine tools that include: turning and related operations, drilling and related operations, milling, grinding and other abrasive processes, and other machining operations. [20 hr].</li> <li>• Study the bulk deformation processes in metal working that include: rolling and related operations, forging and related operations, extrusion, and wire and bar drawing and also study the sheet metal working / (1) cutting operations, (2) bending operations, (3) drawing. [20 hr]</li> <li>• Study the joining and assembly processes that include: fundamentals of welding, arc welding, resistance welding, oxyfuel gas welding, soldering, and brazing. [16 hr]</li> <li>• study the fundamentals of metal casting, and metal casting processes. [4 hr]</li> </ul>

### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

Strategies	Teaching and learning strategies can include a range of whole class, group and individual activities to accommodate different abilities, skills, learning rates and styles that allow every student to participate and to achieve some degree of success. After considering students' needs, learning styles.
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Student Workload (SWL) الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	5, 10, and 14	LO #1- #4, #5 - #9 and #10 - #13
	Assignments	2	10% (10)	6 and 11	LO #1 - #5 and #6 - #10
	Report	1	5% (5)	13	All
	Practical	1	10% (10)	Continuou s	All
Summative assessment	Midterm Exam	2hr	10% (10)	11	LO #1 - #10
	Final Exam	3hr	50% (50)	16	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Turning and Related Operations

Week 2	Drilling and Related Operations
Week 3	Milling
Week 4	Grinding and Other Abrasive Processes
Week 5	Other Machining Operations: (1) shaping and planing, (2) broaching, and (3) sawing
Week 6	Rolling and Related Operations
Week 7	Forging and Related Operations
Week 8	Extrusion, Wire and Bar Drawing
Week 9	Wire and Bar Drawing
Week 10	Sheet Metal Working / (1) Cutting Operations, (2) Bending Operations, (3) Drawing
Week 11	Fundamentals of Welding – (mid-term Exam)
Week 12	Arc welding
Week 13	Resistance welding, Oxyfuel gas welding
Week 14	Soldering, Brazing
Week 15	Fundamentals of Metal Casting, Metal Casting Processes
Week 16	Preparatory week before the final Exam

#### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	A) The turning workshop consists of training its students on: 1) Listed work (adjusting the correct measurements for different diameters and lengths using a triangle turning pen).
Week 2	2) Make the arches (it should be on the same piece as the first exercise, after adjusting it and making sure of the measurements according to the drawing in

	the first exercise).
Week 3	3) Making different angles (introducing the student to the use of shaping pens (square pen, corner pen 55)).
Week 4	Exam: A test was conducted for the student on what he learned in the theoretical and practical aspects
Week 5	B) The filling workshop consists of training its students on: 1) Filling flat surfaces and filling straight and inclined angles
Week 6	2) Sawing and sawing process
Week 7	3) Hand Drills and Vertical Stationary Drills (How to Operate and Use)
Week 8	Exam: A test was conducted for the student on what he learned in the theoretical and practical aspects
Week 9	C) The welding workshop consists of training its students on various welding methods, such as: 1) Manual arc welding: a) Training on how the electric arc works and occurs between two electrodes.
Week 10	b) Training on how to make welding lines straight.
Week 11	c) Training on how to weld the construction exercise (increasing the thickness of the piece).
Week 12	2) Gas welding (oxy-acetylene)
Week 13	3) Electric arc welding protected by inert gas represented by gases such as argon and carbon dioxide, where argon gas is used with tungsten electrode welding machines (T.I.G) and CO2 gas with machines (M.I.G).
Week 14	4) Electrical resistance welding, specifically spot welding.
Week 15	Exam: A test was conducted for the student on what he learned in the theoretical and practical aspects
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	[1] Groover, Mikell P. <i>Fundamentals of modern manufacturing: materials, processes, and systems</i> . John Wiley & Sons, 2020.	No

Recommend ed Texts	None	No
Websites	[1] <a href="https://books.google.com/books?hl=ar&amp;lr=&amp;id=mB7zDwAAQBAJ&amp;oi=fnd&amp;pg=PA1&amp;dq=FUNDAMENTALS+OF+MODERN+MANUFACTURING+Materials,Processes,andSystems+Fourth+Edition&amp;ots=H1hck34oBY&amp;sig=os2Xrjr-16zwPs6JVbGDcG4fuy8">https://books.google.com/books?hl=ar&amp;lr=&amp;id=mB7zDwAAQBAJ&amp;oi=fnd&amp;pg=PA1&amp;dq=FUNDAMENTALS+OF+MODERN+MANUFACTURING+Materials,Processes,andSystems+Fourth+Edition&amp;ots=H1hck34oBY&amp;sig=os2Xrjr-16zwPs6JVbGDcG4fuy8</a>	

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
<p>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.</p>				

Module Information معلومات المادة الدراسية		
Module Title	Chemistry	Module Delivery
Module Type	S	<input checked="" type="checkbox"/> Theory  <input type="checkbox"/> Lecture
Module Code	UOBAB0301025	
ECTS Credits	4	

SWL (hr/sem)	100		<input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Level	UGI	Semester of Delivery	Two	
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Ali Jassim Al-zuhairi	e-mail	<a href="mailto:met.ali.jassim@uobabylon.edu.iq">met.ali.jassim@uobabylon.edu.iq</a>	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.	
Module Tutor		e-mail		
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1) To develop problem solving skills and understanding of the quantitative analytical methods. 2) To understand acids, basis and salts. 3) This course deals with the basic concept of buffers. 4) This is the basic subject for all physical chemistry concepts. 5) To understand ideal gas law. 6) To perform the thermochemistry.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>10.The students will know the principle of analytical chemistry.</p> <p>11.List the quantitative and qualitative analysis.</p> <p>12.Summarize what is meant by acids, basis and salts.</p> <p>13.Discuss the titration curves.</p> <p>14.Describe the principle of organic chemistry in terms of alkan, alkenes and alkynes.</p> <p>15.Identify the basic hydrocarbons by its nomenclature and reactions.</p> <p>16.Explain the Ideal gas law.</p> <p>17.Identify the enthalpy of a chemical reaction.</p>
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Introduction of Analytical Chemistry and its types, The principle of Volumetric analysis, Molar, Normal and formal concentration, Acid Base titrations, Buffers and Titration Curves, Oxidation-Reduction reactions, Precipitation reactions. [20 hrs]</li> <li>• Organic chemistry (Introduction), The Alkanes, Alkanes reactions and Alkenes. [15 hrs]</li> <li>• Alkenes reactions, Alkynes and Alkynes reactions. [15 hrs]</li> <li>• Ideal gas law, Boyle's law, Charles's law, thermochemistry, Energy sources. [10 hrs]</li> </ul>

### 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 types of simple experiments involving some sampling activities that are interesting to the students.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
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Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Analytical Chemistry and its types
Week 2	The principle of Volumetric analysis
Week 3	Molar, Normal and formal concentration
Week 4	Acid Base titrations
Week 5	Buffers
Week 6	Review of Titration Curves
Week	Mid-term Exam

7	
Week 8	Oxidation-Reduction reactions
Week 9	Alkanes reactions
Week 10	Alkenes reactions
Week 11	Alkynes reactions
Week 12	Aldehydes and ketones
Week 13	Carboxylic acids reactions
Week 14	Ideal gas law and Boyle's law
Week 15	Thermochemistry and Energy sources
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Acid- Base titration
Week 2	Lab 2: Reduction - Oxidation titration
Week 3	Lab 3: Precipitation titration
Week 4	Lab 4: Complex metric titration
Week 5	Lab 5: Determination the density of a liquid
Week 6	Lab 6: Determination of Calorimetric Constant
Week 7	Lab 7: Determination the Viscosity of a pure liquid

Learning and Teaching Resources
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مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	General Chemistry ;Darrell D. Ebbing; Steven D. Gammon	no
Recommended Texts		
Websites	<a href="https://books.google.iq/books?id=BnccCgAAQBAJ&amp;printsec=frontcover&amp;redir_esc=y#v=onepage&amp;q&amp;f=false">https://books.google.iq/books?id=BnccCgAAQBAJ&amp;printsec=frontcover&amp;redir_esc=y#v=onepage&amp;q&amp;f=false</a>	

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	English language I			Module Delivery	
Module Type	B			<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	UOBAB0301026				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UGI	Semester of Delivery		Two
Administering Department		Type Dept. Code	College	Type College Code	
Module Leader	Rusul Dawood Salman		e-mail	<a href="mailto:met.rusul.dawood@uobabylon.edu.iq">met.rusul.dawood@uobabylon.edu.iq</a>	
Module Leader's Acad. Title		Lecturer	Module Leader's Qualification		MSc
Module Tutor	-		e-mail	-	
Peer Reviewer Name	-		e-mail	-	
Scientific Committee Approval Date		01/06/2023	Version Number	1.0	
Relation with other Modules العلاقة مع المواد الدراسية الأخرى					
Prerequisite module	None			Semester	
Co-requisites module	None			Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية					
1) Developing skills of reading, writing, speaking and listening. 2) Providing a survey of theoretical perspectives concerning the					

<p>Module Objectives</p> <p>أهداف المادة الدراسية</p>	<p>student's learning and development.</p> <p>3) Providing an overview of a variety of important issues in English language that help the students to communicate easily with others.</p> <p>4) Applying the theoretical issues in order to give the student the opportunity to practice language and encourage him to speak with foreign people.</p> <p>5) Giving the students the ability to express their opinions and participating in discussion.</p> <p>6) Using variety of digital devices and tools in order to interpret and create meaning.</p>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. The ability to understand the uses of language in the light of purposes.</li> <li>2. Identifying the most important daily phrases to be applicable in life.</li> <li>3. Development of evidence-based arguments.</li> <li>4. Making the students aware of the correct usages of English grammar in writing and speaking.</li> <li>5. Improving the students' ability in English in terms of fluency and comprehensibility.</li> <li>6. Students will give oral presentation and receive feedback on their performance.</li> <li>7. Improving the students' reading skills through the extensive reading.</li> <li>8. Providing the students with a large repertoire of vocabulary.</li> <li>9. Applying the grammatical forms in communicative contexts such as: class activities, reading &amp; writing, and homework.</li> <li>10. Strengthening the students' ability to write essays and academic papers.</li> <li>11. Enhancing the students' competence in four important elements: Writing, speaking, reading and listening.</li> </ol>
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>• Focusing on four important issues in English language: Writing, speaking reading and listening [15 hrs]</li> <li>• Understanding the general topic or main idea, major points, important facts and details, vocabulary in context, and pronoun references. [15 hrs]</li> <li>• Comprehending the main idea, major points, and important details related</li> </ul>

to the main idea. [10 hrs]

- Students should be able to speak successfully in and outside the classroom. [15 hrs]
- [6 hrs]

#### Part B - Analogue Electronics

##### Fundamentals

- Recognizing tenses choosing the correct form, arranging the sentences in the correct order, [15 hrs]
- Covering aspects such as phonetics, semantics and pragmatics. [7 hrs]
- Exploring the building blocks of the language, understanding language in deeper level, learning how to structure words and sentences so that other people can understand them. [15 hrs]

#### Learning and Teaching Strategies

##### استراتيجيات التعلم والتعليم

##### Strategies

Student is an essential part of the process thus we should take into consideration the levels of student's' comprehension whence providing him with better and easies planning, improved ability to monitor student's goals ,teaching language skills across all curriculum topics, Speaking slowly and allowing extra time for students to respond, using a variety of methods to engage learning,.

#### Student Workload (SWL)

##### الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

### Module Evaluation

تقييم المادة الدراسية

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

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – Giving a general information about English Language
Week 2	Speaking (paired choice) asking about the general opinions about possible issues
Week 3	Speaking( campus announcement & general conversation) report on the speaker's opinion & explain why he/she feels that way
Week 4	Integrated speaking (Academic reading & Lecture) explaining the academic topics & describing the main points in it.
Week 5	Listening to engineering conversation to obtain a wide vocabularies
Week 6	Listening to various videos concerning the engineering fields as: (Mechanical engineering, electrical engineering in addition to renewable energies).
Week 7	Mid-term Exam
Week 8	Writing ( learning students how to write essays on engineering field)
Week 9	Writing (enabling students to write their opinion about specific academic topic in general or write about engineering subject in particular).
Week 10	Speaking ( making the students sum up the main points of the lecture that is delivered previously)
Week	Speaking (increasing the student' ability to speak fluency and increasing its rate )

11	
Week 12	Listening ( encourage the student to make inferences from what he/she heard before)
Week 13	Listening ( ask the student what the speaker imply in his/her speech)
Week 14	Writing (ask student to write the essential information in the highlighted sentences in paragraph and make paraphrasing in to those sentences)
Week 15	Witting ( encourage student to extract the most important issues in paragraph)
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	TOEFL Practice Online The official practice test that can help you go anywhere	No
Recommend ed Texts	The Cambridge Encyclopedia of the English Language By David Crystal	No
Websites	<a href="https://www.cambridge.org/">https://www.cambridge.org/</a>	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
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				required

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