

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Principles of Chemical Processes		
Module Type	Core	☒ Theory Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	FEE111		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	2
Administration Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	ALI Jaafar Ghafel		e-mail
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	MSc
Module Tutor	NA	e-mail	NA
Peer Reviewer Name	NA	e-mail	NA
Scientific Committee Approval Date	1/11/2024	Version Number	1

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1- Student able to identify the common dimensions and units and systems of units 2- Students explore the different roles chemical engineers who work in chemical , petrochemical plant and oil refineries in operating and controlling
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- understand and digest the common unit-conversion factors - Analysis and representation of data process - Define the most common Process variables . - Describe basic techniques for expressing the values of system variables and set up and solve equations that relate these variables - Ability to calculate the process variables for single component and mixture - Classification the gases to ideal and real and understanding the difference between them - Using Equation of states to calculate the variables of gas process - Understand the multi-phase systems - Understand equilibrium state between two phases
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Unit and Dimension (20 hrs) - Dimensional Homogeneity (10 hrs) - Process variables (20 hs) - Data representation (10 hrs) - Ideal and Real Gases (20 hr) - Vapor Pressure. (10 hrs) - Raoult's and Henry's law (20hs)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	- Questions and inquiries characterized by depth and accuracy. - Directing the student towards understanding the cause and reason. - Assigning the student some group activities and duties. - Conducting daily tests for the student - Scientific discussion on a regular basis
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	77	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	123	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	5	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Project	1	10% (10)	continuous	
Summative assessment	Mid term Exam	1.5 hr	20% (20)	10	LO # 5, 8 and 10
	Final Exam	2hr	50% (50)	16	LO # 1-7 All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

Week (1-4)	Introduction to Engineering Calculations Unit, dimensions, conversion of units, dimensional homogeneity, process data representation and analysis
Weeks (5-9)	Process Variables Mass, volume, flow rate, chemical composition, pressure, temperature
Weeks (10 - 12)	Single Phase Systems: Solids, liquids, ideal gas and real gases; Equations of State; Compressibility factor charts Ideal and Real Gases
Week (13-15)	Multi-phase Systems: ; Single-component phase equilibrium, Vapor pressure, Effect of temperature on vapor pressure, Vapor pressure plot (Cox chart), Vapor pressures of miscible and immiscible liquids and solutions, Raoult's Law and Henry's Law

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	J Felder, Richard M. Elementary principle of chemical Processes.	Yes
Recommended Texts	Himmelblau, David M. "Basic principles and calculations in chemical engineering".	Yes

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Fundamentals 1		Module Delivery
Module Type	Support		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	STU102		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	
Administering Department	Fuel and Energy Engineering. Dept	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	Muhammad Jassim	e-mail	Muhammad.Jassim@alayen.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	M.SC.
Module Tutor	N. A.	e-mail	N. A.
Peer Reviewer Name	N. A.	e-mail	N. A.
Scientific Committee Approval Date	1/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim is to define and understand computer compounds and its applications.:
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of the course, students are able to : 1.explain the basics components of computer. 2- knowledge of numerical systems. 3- using software(word application)
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. tests of the theoretical material and the continuous weekly practical material. 2.Exercises and activities within the lesson and within the workshop. 3.Guiding the student to some sources to benefit from them
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	27	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	75		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Categories of computers, basic components of a computer
Week 2	Representing data in computer, data flow and basic function of a computer, relationships between computer
Week 3	Generation of computer
Week 4	External input devices, specialized external input devices
Week 5	Internal processing, memory, and storage devices.
Week 6	Internal Hardware components
Week 7	External out devices, specialized external output devices
Week 8	Storage media, connection ports
Week 9	Function of operating systems
Week 10	Network terminology, types of Networks.
Week 11	Network topology, benefits and risks of net worked of computer.
Week 12	Computer virus
Week 13	Number systems, decimal number system, binary number system.

Week 14	Number systems, octal number system, hexadecimal number system.
Week 15	Conversion among number units
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	desktop
Week 2	Minimizing, maximizing and closing window
Week 3	Shutting down and restart the computer
Week 4	Start menu
Week 5	Using desktop folder and icons
Week 6	Organizing files and folders
Week 7	Finding files and recycle bin
Week 8	Midterm exam1
Week 9	System information
Week 10	Starting application and screen elements
Week 11	Saving and opening a file
Week 12	Creating and editing files
Week 13	Text and paragraph formatting, and print document
Week 14	Graphic tools, tables
Week 15	Preparation for final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Computer and internet ic³	Yes
Recommended Texts		Yes
Websites		

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering drawing		Module Delivery	
Module Type	Support		Theory Lecture Lab Tutorial x Practical Seminar	
Module Code	BETC106			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		1
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College	
Module Leader	SAFA HAMEED		e-mail	Safa.Hameed@alayen.edu.iq
Module Leader's Acad. Title	Assist. Lecturer		Module Leader's Qualification	M.sc
Module Tutor			e-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	1/11/2024	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of teaching engineering drawings encompass a range of objectives that are designed to provide students with the necessary knowledge and skills related to creating, interpreting, and using engineering drawings effectively.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Engineering drawings play a crucial role in the field of engineering and serve as a means of communication between engineers, designers, and manufacturers. Learning outcomes associated with engineering drawings include: 1. Interpretation and Understanding: Students should be able to read, interpret, and understand engineering drawings accurately. This involves comprehending different types of lines, symbols, dimensions, and annotations used in engineering drawings. 2. Visualization Skills: Engineering drawings help students develop spatial visualization skills, enabling them to mentally visualize and comprehend three-dimensional objects based on two-dimensional representations. This skill is essential for engineers to understand the physical structure and arrangement of components. 3. Geometry and Projections: Engineering drawings introduce students to geometric concepts and projections, including orthographic (multiview) projections, isometric projections, and auxiliary views. Students learn to represent objects from various angles and perspectives. 4. Dimensioning and Tolerancing: Students learn how to dimension objects accurately on engineering drawings, including linear dimensions, angular dimensions, and geometric tolerances. They understand the importance of tolerance, fit, and clearance in design and manufacturing processes. 5. Engineering Standards and Conventions: Students become familiar with engineering standards and conventions related to drawings, such as the American National Standards Institute (ANSI) or International Organization for Standardization (ISO) standards. They learn to follow these guidelines to ensure consistency and clarity in their drawings. 6. Engineering Symbols and Notations: Students acquire knowledge of commonly used symbols and notations in engineering drawings, such as welding symbols, surface finish symbols, electrical symbols, and material specifications. They understand how to incorporate these symbols to convey specific information accurately. 7. Assembly and Detail Drawings: Students learn to create assembly drawings, showing how individual components fit together to form a complete product or structure. They also develop skills in creating detailed drawings that provide specific information about individual components. 8. Computer-Aided Design (CAD): With the advancement of technology, students learn to use CAD software to create and modify engineering drawings. They gain proficiency in using software tools to create accurate and professional drawings efficiently. 9. Communication and Collaboration: Engineering drawings serve as a common language for engineers and other professionals involved in the design and

	manufacturing processes. Students develop communication and collaboration skills by effectively conveying their design intent and understanding others' drawings. 10. Error Identification and Troubleshooting: Students develop the ability to identify errors, omissions, or inconsistencies in engineering drawings. They learn troubleshooting techniques to rectify issues and ensure that drawings meet the required standards and specifications. Overall, learning about engineering drawings helps students develop essential technical skills, enhance their design abilities, and become proficient in communicating their ideas effectively within the engineering community. Top of Form Regenerate response
Indicative Contents المحتويات الإرشادية	The indicative contents of engineering drawings include various elements and information that are essential for accurately representing and communicating engineering designs. While the specific contents may vary depending on the type of drawing and the industry or discipline, here are some common indicative contents found in engineering drawings: 1. Title Block: The title block is typically located in the lower-right corner of the drawing and contains important information such as the title of the drawing, drawing number, revision number, scale, date, and the name of the drafter or designer. 2. Drawing Views: Engineering drawings often include multiple views that depict the object from different angles and orientations. Common views include front view, top view, side view, and isometric view. These views provide a comprehensive representation of the object and its dimensions. 3. Dimensions and Tolerances: Dimensions are used to specify the size, shape, and location of features on the drawing. They are typically indicated using lines with arrows or numerical values. Tolerances are included to define the allowable variations in dimensions to ensure proper fit and functionality. 4. Geometric Symbols and Notations: Engineering drawings may include various symbols and notations to represent features such as holes, threads, surface finishes, welds, and fasteners. These symbols provide specific instructions and specifications for manufacturing and assembly. 5. Sectional Views: Sectional views are used to show the internal structure of an object. They are typically indicated by cutting the object and presenting a

	view of the cut surface. Sectional views help visualize internal features that are not visible in the regular views. 6. Annotations and Notes: Annotations and notes are added to the drawing to provide additional information or instructions. They can include explanations, materials specifications, manufacturing instructions, or any other relevant details that aid in the understanding and implementation of the design. 7. Symbols and Abbreviations Legend: A legend or key is often included on the drawing to explain the meaning of symbols, abbreviations, and other notations used throughout the drawing. This ensures that the information is clear and easily understood by those reading the drawing. 8. Revision History: Engineering drawings are often subject to revisions and updates. A revision history table is included to track the changes made to the drawing over time, including the revision number, date, and a brief description of the modifications. 9. Drawing Notes and General Information: General information about the drawing, such as design intent, project specifications, and any additional instructions or requirements, may be included in a designated area on the drawing. These notes provide important context and guidelines for the implementation of the design.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and teaching strategies for engineering drawings aim to facilitate effective understanding, interpretation, and application of the principles and techniques involved in creating and interpreting engineering drawings. Here are some strategies that can be employed: 1. Hands-on Practice: Provide students with ample opportunities for hands-on practice in creating engineering drawings. This can include assignments, projects, or design exercises that require students to create and interpret various types of engineering drawings. Practical experience helps reinforce learning and enhances students' proficiency in applying drawing principles. 2. Visual Demonstrations: Utilize visual demonstrations, such as videos, animations, or real-life examples, to illustrate key concepts and techniques related to engineering drawings. These demonstrations can provide a clear

and visual representation of how drawings are created and interpreted, helping students grasp the underlying principles effectively.

3. **Interactive Discussions:** Engage students in interactive discussions to promote critical thinking and deeper understanding of engineering drawings. Encourage students to analyze and interpret drawings, discuss the reasoning behind design choices, and explore alternative approaches. This fosters active learning and encourages students to think critically about the content.
4. **Peer Learning and Collaboration:** Incorporate opportunities for peer learning and collaboration in the learning process. Encourage students to work together on drawing exercises, share their ideas, and provide feedback on each other's work. Collaborative activities enhance understanding through the exchange of perspectives, problem-solving, and collective learning.
5. **Integration of Technology:** Integrate computer-aided design (CAD) software and other relevant technological tools into the teaching of engineering drawings. CAD software enables students to create, modify, and analyze drawings digitally, providing a realistic and interactive learning experience. Students can gain proficiency in using CAD tools, which are widely used in engineering practice.
6. **Scaffolded Learning:** Employ a scaffolded learning approach, starting with simpler drawings and gradually progressing to more complex and challenging ones. Break down complex drawings into smaller components and guide students step-by-step through the process of creating and interpreting each component. This gradual progression builds students' confidence and competence in handling more complex drawings.
7. **Real-world Applications:** Connect engineering drawings to real-world applications and case studies. Highlight the practical significance of accurate and well-communicated drawings in various engineering disciplines. Show examples of how engineering drawings are used in manufacturing, construction, and other industries, emphasizing the impact of drawing accuracy on product quality and safety.
8. **Formative Assessment:** Use formative assessment methods to gauge students' understanding and progress throughout the learning process. Provide regular feedback on students' drawings, identifying areas for improvement and reinforcing correct practices. This iterative feedback loop helps students refine their drawing skills and consolidate their knowledge.
9. **Field Visits and Guest Speakers:** Organize field visits to engineering firms or construction sites where students can observe the application of engineering drawings in practice. Inviting guest speakers, such as industry professionals or experienced engineers, to share their expertise and experiences can

	provide valuable insights and enhance students' understanding of real-world applications. 10. Reflective Practice: Encourage students to engage in reflective practice by reviewing their own drawings, identifying strengths and weaknesses, and setting goals for improvement. Self-reflection promotes metacognition and helps students become more aware of their learning process and areas for growth. 11. By employing these learning and teaching strategies, educators can create an engaging and effective learning environment for students, promoting their understanding and proficiency in engineering drawings.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	5, 10	LO # 1,2,3,4,5,6 LO # 11,12,
	Assignments	30	15% (15)	4, 9	All
	Report	1	10% (10)	13	LO # 1,2,3,4,5,6,7,8,9,10
Summative assessment	Midterm Exam	3 hr	20% (20)	7	LO # 1,2,3,4,5,6,7,8,9,10
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to engineering drawing + (free hand sketch)
Week 2	Engineering drawing using graph paper & drawing tools
Week 3	Two dimensional AutoCAD commands
Week 4	Orthographic projection- 1st angle projection system using Autocad
Week 5	Orthographic projection- 1st angle projection system using graph paper
Week 6	Dimensioning by AutoCAD
Week 7	Exercise in 1st angle projection system using 2D AutoCAD commands
Week 8	Exercise in 1st angle projection system using graph paper
Week 9	Orthographic projection- 3rd angle projection system using AutoCAD
Week 10	Orthographic projection- 3rd angle projection system using graph paper
Week 11	Sections - using 2D AutoCAD commands
Week 12	Sections - using graph paper
Week 13	Three dimensional AutoCAD commands
Week 14	Exercises in 3D isometric drawing by AutoCAD
Week 15	Extraction of views from the AutoCAD
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Dhananjay A Jolhe, Engineering drawing, McGraw Hill Education, TMH, 2008.	Yes
Recommended Texts	K Venkata Reddy, engineering drawing, BS publications, 2009	Yes
Websites		

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

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Arabic Language		Module Delivery	
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MU06			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	05	College	Al Ayen Iraqi University- Engineering Technical College	
Module Leader	Shokran ADNAN		e-mail	shokranadnan@gmail.com
Module Leader's Acad. Title	Assist. Lecturer		Module Leader's Qualification	Msc
Module Tutor			e-mail	E-mail
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	01/11/2024		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف الهادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف الهادة الدراسية	1- مساعدة الطالب على حب اللغة العربية لغة القرآن الكريم. 2- التعرف على مواطن الجمال في اللغة العربية وأدائها. 3- أن يكتسب الطالب القدرة على دراسة فروع اللغة العربية. 4- تعريف الطالب بألفاظ اللغة العربية الصحيحة وتركيبتها وأساليبها السليمة بطريقة مشوقة وجذابة. 5- تنمية الطالب مهارات اللغة السليمة في المخاطبات الرسمية
Module Learning Outcomes مخرجات التعلم للهادية الدراسية	1- تعلم خصائص اللغة ومميزاتها عن اللغات الأخرى 2- تحقيق الكفايات اللغوية والقواعدية في أداء الطلبة للغة العربية في كل من الانشئ، والقواعد 3- تمييز مواطن الأعراب في مادة اللغة العربية 4- معرفة الحركات (الفتحة والضمة والكسرة) وأصوات أعراس مثل همزة الفصل والوصل. 5- قراءة الكلمات والجمل وفهم معانيها والربط بينها 6- اكتساب الطالب القدرة على التعبير الصحيح في التخاطب، والتحدث، والكتابة. 7- تعلم أساسيات كتابة الأعداد 8- يتضح لديه علامات الأصلية والفرعية للجمل العربية 9- رفع مستوى الطالب على القراءة الصحيحة، والنطق السليم، وفهم الأفكار 10- تعليم الطالب بحفظ قدر كافٍ من النصوص الأدبية، وأن يستنتج بها، ويتوقف مظاهر الجمال فيها
Indicative Contents المحتويات الإرشادية	جلسة الإرشادية تحقيق فرصة الهسترنند ليعبر عنها بداخله ويسلك بصرية فعلى الهسترنند حسن الأصغاء، ودقة الملاحظة وتركيز الانتباه لكل قول أو فعل كى ترك الهسترنند الجوانب المختلفة للمسئلة والمحافظة على اللغة القصصى و الابتعاد عن العامية و معالجة الأخطاء، التثنية.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	التعليم هو انتقال الطالب من مرحلة إلى أخرى على المهارات بالدرجات الابتدائية إلى مرحلة التركيز على تبنى وأن يقوم الطالب بمواجهه كثير من الطالب من أجل قراءة المعلومات عن الكتب الدراسية. ويقوموا كذلك بتدوين الملاحظات أثناء المحاضرات، كما يتم العمل بطريقة مستقلة، بجانب التعبير.
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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	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1

Total SWL (h/sem)		50			
الحمل الدراسي الكلي للطالب خلال الفصل					
Module Evaluation					
تقييم الوحدة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 14	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	5 and 9	LO #2, #3 and #7, #8
	Projects / Lab.	1	10% (10)	12	LO #5, #6 and #9
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
البرنامج الاسبوعي النظري	
	Material Covered
Week 1	نبذة مختصرة عن أهمية اللغة
Week 2	محاضرة عن أقسام اللغة العربية
Week 3	محاضرة عن أقسام الجملة العربية في لغتنا
Week 4	محاضرة عن أقسام الجملة الاسمية والفعلية في اللغة
Week 5	محاضرة عن كتابة العدد
Week 6	محاضرة عن جمل التمييز
Week 7	محاضرة كيفية وضع علامات التنقيط
Week 8	<u>Midterm Exam</u>
Week 9	محاضرة عن الأدب العربي
Week 10	محاضرة عن أقسام الأدب العربي
Week 11	محاضرة عن أقسام الشعر العربي مع نموذج من قصائده
Week 12	محاضرة عن أقسام النثر مع نموذج من نثره
Week 13	محاضرة تضم تطبيقات عملية لكل المواد اللغة
Week 14	محاضرة (اختبارات عملية لكل مواد الأدب)
Week 15	معرفة الهمزة المتوسطة والمتطرفة

Week 16	Preparatory week before the final Exam	
Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	محاضرات 'يف اللغة العربية العامة	نعم
Recommended Texts	اللغة العربية لغري الاختصاص	نعم
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتيار	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 الرجعة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Analytical Chemistry		Module Delivery
Module Type	Support		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	FEE110		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	
Administering Department	Fuel and Energy Engineering. Dept	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	ALI Jaafar Ghafel	e-mail	
Module Leader's Acad. Title	Lecturer Assistannce	Module Leader's Qualification	M.SC.
Module Tutor	N. A.	e-mail	N. A.
Peer Reviewer Name	N. A.	e-mail	N. A.
Scientific Committee Approval Date	1/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents
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أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Understanding the basics of chemistry analytical and build a scientific base for the student to facilitate dealing with acid and base and reaction and its role in our daily life.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Establishing scientific concepts in the acid and base by chemical methods needed by the student 2. The student learns to Preparation of solutions solids and liquid.
Indicative Contents المحتويات الإرشادية	The course addresses the analytical chemistry of Basic concept of qualitative and quantitative analysis. Qualitative and quantitative analytical method and concentrations, principals of quantitative gravimetric analysis, chemical equilibrium and Chemical solubility. Reactions of acids, bases, pH for the acidic solutions. Buffer solution, equilibrium in the oxidation and reduction reactions, equations of oxidation and reduction, indicators of oxidation and reduction. Complex formation. Drawing of reaction curves in aqueous solution, construction of titration curves of aqueous solutions. Method and principles of spectrometric analysis instrumental analysis for industry.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. tests of the theoretical material and the continuous weekly practical material. 2. Exercises and activities within the lesson and within the workshop. 3. Guiding the student to some sources to benefit from them 4. Watching videos that show how chemical reactions work..

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO # 1,2,3,4,5,6 LO # 11,12,
	Assignments	5	10% (10)	2, 4, 6, 8, 12	All
	Seminar	1	10% (10)	13	LO # 1,2,3,4,5,6,7,8,9,10
	Lab.	1	10% (10)	continuous	
Summative assessment	Midterm Exam	1.5 hr	10% (10)	7	LO # 1,2,3,4,5,6,7,8,9,10
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Basic concept of qualitative and quantitative analysis
Week 2	Qualitative and quantitative analytical method and concentrations
Week 3	Qualitative and quantitative analytical method and concentrations
Week 4	Principals of quantitative gravimetric analysis
Week 5	Chemical equilibrium and Chemical solubility
Week 6	Reactions of acids, bases
Week 7	Reactions of acids, bases
Week 8	pH for the acidic solutions + Midterm Exam
Week 9	Buffer solution
Week 10	Volumetric Analysis, Neutralization reactions
Week 11	Differential titration
Week 12	Drawing of reaction curves in aqueous solution for Neutralization reactions
Week 13	precipitation reactions, Drawing of reaction curves in aqueous solution for precipitation reactions
Week 14	oxidation and reduction reactions,
Week 15	Complex formation
Week 16	Preparation for Final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	introduction of glasses and devices and material in lap
Week 2	Preparation Solution (Solid State)
Week 3	Preparation Solution) liquid State)
Week 4	Standardization of hydrochloric acid(HCl)with sodium carbonate(Na_2CO_3)
Week 5	Standardization of Sodium hydroxide (NaOH) with hydrochloric acid (HCl)
Week 6	Standardization of acetic acid (CH_3COOH)

Week 7	Standardization of Mixture(NaOH+Na ₂ CO ₃)
Week 8	Midterm exam 1
Week 9	Standardization of Sodium chloride (NaCl) with silver nitrate (AgNO ₃) by Mohr's Method
Week 10	Standardization of Sodium chloride (NaCl) with silver nitrate (AgNO ₃) by Volhard Method
Week 11	Hardness of water
Week 12	Standardization of KmnO ₄ with H ₂ C ₂ O ₄
Week 13	Midterm exam 2
Week 14	Preparation for final exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1-Edward. Quantitative Analysis 2-Flaschka. Quantitative Analytical Chemistry.	Yes
Recommended Texts	1. David Harvey. Modern Analytical Chemistry.	Yes
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	حقوق الإنسان		Module Delivery
Module Type	مساعدة		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar
Module Code	102STU		
ECTS Credits	2		
SWL (hr/sem)	50		
Year		Semester of Delivery	
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	Azhar Rahim	e-mail	Azhar.Rahim.Owaid@alayan.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	M.sc
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات البرنامجية	
Module Objectives أهداف المادة الدراسية	الم 1- التعرف على الديمقراطية وحقوق الإنسان، والتثقيف وإشاعة الوعي بهما . 2- تعزيز سبل التعليم التفاعلي. 3- تنمية مهارات رصد الانتهاكات والتعامل مع المنتهكين. 4- دعم مهارات فهم قضايا حقوق الإنسان.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	مساهمة في تغيير حياة الإنسان إلى الأفضل ، وتعزيز مشاعر التضامن مع الآخرين.-1 تعزيز سبل المشاركة في الشأن العام – المواطنة، والربط بين الفرد والجماعة والدولة -2 ومؤسساتها. تعزيز فكرة العدالة الاجتماعية، -3
Indicative Contents المحتويات البرنامجية	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	

Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	32	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	18	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.5
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	5% (5)	5 and 10	
	Assignments	2	5% (5)	2 and 12	
	Projects / Lab.	0	0%		
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	1.5hr	30% (30)	7	
	Final Exam	2hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
النهج الأسبوعي النظري	
	Material Covered
Week 1	مفهوم حقوق الإنسان : تعريف حقوق الإنسان - الحكمة من مند الله سبحانه تعالى الحقوق للإنسان - صفات حقوق الإنسان - أنواع حقوق الإنسان - فئات حقوق الإنسان .
Week 2	تطور فكرة حقوق الإنسان : حقوق الإنسان في الحضارات القديمة - حقوق الإنسان في النثران والأديان السماوية .
Week 3	حقوق الإنسان في المجتمعات المعاصرة : منظمة الأمم المتحدة وحقوق الإنسان .
Week 4	الإعلان العالمي لحقوق الإنسان .
Week 5	دور المنظمات غير الحكومية المدافعة عن حقوق الإنسان .
Week 6	ضمانات حقوق الإنسان على الصعيد الداخلي : الضمانات الدستورية - الضمانات القضائية.
Week 7	مستقبل حقوق الإنسان : التقني التكنولوجي وأثره على الحقوق والحريات .
Week 8	حقوق التأليف والطبع والنشر .
Week 9	حقوق الإنسان والهجرات .
Week 10	مفهوم الديمقراطية : جذور مفهوم الديمقراطية وتطوره - تعريف الديمقراطية .
Week 11	الشروط العامة لنجاح النظم الديمقراطية .
Week 12	انسكال الديمقراطية : الديمقراطية الهانسة - الديمقراطية تنبه الهانسة .
Week 13	الديمقراطية التمثيلية (النيابية) .
Week 14	آلية النظم التمثيلي (النيابي) : الانتخاب : مفهوم الانتخاب - التكيف القانوني للانتخاب - تنظيم عملية الانتخاب .
Week 15	تقييم النظم الديمقراطية : إيجابيات النظم الديمقراطية - سلبيات النظم الديمقراطية - تطبيق النظم الديمقراطية في العراق .
Week 16	

Delivery Plan (Weekly Lab. Syllabus)

النهج الاسبوعي للمختبر

	Material Covered
Week 1	non
Week 2	non
Week 3	non
Week 4	non
Week 5	non
Week 6	non
Week 7	non

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	حقوق الإنسان والطفل والديمقراطية. د. رعد ناجي الجدة وآخرون، جامعة تكريت - 2009 .	yes
Recommended Texts	حقوق الانسان ، تطورها. مظاهرها. حياتها. د. رياض عزيز . هادي. بغداد. 2005	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 الفعالية)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Calculus		Module Delivery
Module Type	S		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	101BEC		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	Iman MAHDI	e-mail	iman.mahdi@alayan.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	MSc.
Module Tutor	NA	e-mail	E-mail
Peer Reviewer Name	NA	e-mail	E-mail
Scientific Committee Approval Date	1/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات البرنامجية

Module Objectives أهداف المادة الدراسية	1. To understand the basics of mathematics 2. Learn about functions, their types, and how to find their domain and their corresponding domain 3. Identifying the purpose of the function, methods of finding it, and determining its practical applications 4. Definition of the derivative of a function, methods of finding it and its practical applications 5. Knowledge of the integration of functions and the ability to calculate them 6. Use different methods to solve integrals 7. Learn about integration applications
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Understanding of calculus and its applications
Indicative Contents المحتويات البرنامجية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Questions and inquiries characterized by depth and accuracy. 2. Directing the student towards understanding the cause and reason. 3. Assigning the student some group activities and duties. 4. Conducting daily tests for the student 5. Scientific discussion on a regular basis
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعاً

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	5

Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150
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Module Evaluation تقييم الوحدة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	5 and 10	
	Assignments	2	10% (10)	2 and 12	
	Projects / Lab.	0	0%		
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	2hr	15% (15)	7	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) البرنامج الأسبوعي النظري	
	Material Covered
Week 1	1. Introduction and Functions Domain, Range: Equation of the straight line,
Week 2	Trigonometric functions and their sketches, Domain, Range, Inverse of functions, Absolute value,
Week 3	Limits, applications, Polar coordinates and Conic sections
Week 4	2. Differential calculus: Introduction to calculus, the gradient of a curve, Differentiation from first principles, differentiation of common functions, differentiation of a product, differentiation of a quotient, function of a function, successive differentiation
Week 5	3. Applications of differentiation: rates of change, velocity and acceleration, turning points, points of inflexion,
Week 6	tangents and normal, Differentiation of parametric equations, Differentiation of Implicit functions,
Week 7	Differentiation of Logarithmic and hyperbolic functions, Inverse trigonometric functions and hyperbolic functions.
Week 8	Partial differentiation, Total differential, rates of change and small changes
Week 9	4. Integral Calculus: Standard integration, definite integral,
Week 10	5. Integration applications: Areas under and between curves, Volumes of solids of revolution, Centroids, Theorem of Pappus, Second moments of area of regular Sections
Week 11	6. Integration using algebraic substitutions: integration using algebraic substitutions, change of limits.

Week 12	7. Integration using trigonometric and hyperbolic substitutions: Integration of $\sin^2 x$, $\cos^2 x$, $\tan^2 x$ and $\cot^2 x$. Integration of powers of sines and cosines integration of products of sines and cosines. Integration using the $\sinh \theta$ substitution. Integration using the $\cosh \theta$ substitution.
Week 13	8. Integration using partial fractions: integration using partial fractions with linear factors, integration using partial fractions with repeated linear factors, integration using partial fractions with quadratic factors.
Week 14	9. Integration by parts & Reduction formulae.
Week 15	10. Double and triple integrals
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	John Bird. Higher Engineering Mathematics 7th 2014	Yes
Recommended Texts		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) الرجعة	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Organic Chemistry		Module Delivery
Module Type	Support		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar
Module Code	FEE112		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	
Administering Department	Fuel and Energy Engineering. Dept	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	Ali JAAFAR GHAFEL	e-mail	
Module Leader's Acad. Title	Assist. Lacturer	Module Leader's Qualification	M.SC.
Module Tutor	N. A.	e-mail	N. A.
Peer Reviewer Name	N. A.	e-mail	N. A.
Scientific Committee Approval Date	01/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of studying organic chemistry: 1- The student is introduced to organic materials, types of chemical bonds, and orbitals. 2- Identify the active groups present in each type of organic compound. 3- Identifying the physical and chemical properties of organic compounds. 4- Know the methods of analysis of organic materials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Know the types of chemical bonds that bind organic compounds and the types of orbitals. 2- Knowing the types of organic compounds and distinguishing between them through knowing the active groups in each type. 3- Knowledge of the physical and chemical properties of organic compounds. 4- Detection of organic functional groups using IR and UV. 5- Being able to measure the melting point and boiling point laboratory. 6- Learn the technique of purifying an organic substance and separating a mixture of several chemicals.
Indicative Contents المحتويات الإرشادية	Organic chemistry, bonds, dipolar couple type of hybridization, orbitals. Hydrocarbon: alkanes, formulation-Hydrocarbons-saturated. Alkene .Acetylene. Aromatic hydrocarbon. Halogen compounds. Ethers. Alcohols. Phenols. Amines, derivatives of amine, diazonium salts. Aldehydes and ketones. Carboxylic acids .Esters. Amide. Cyclic compounds, Detection of organic functional groups using IR and UV. Practical organic chemistry physical properties of liquid and solid organic compounds, normal distillation and partial distillation.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. tests of the theoretical material and the continuous weekly practical material. 2.Exercises and activities within the lesson and within the workshop. 3.Guiding the student to some sources to benefit from them 4. Watching videos that show how chemical reactions work..
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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO # 1,2,3,4,5,6 LO # 11,12,
	Assignments	5	10% (10)	2, 4, 6, 8, 12	All
	Seminar	1	10% (10)	13	LO # 1,2,3,4,5,6,7,8,9,10
	Lab.	1	10% (10)	continuous	
Summative assessment	Midterm Exam	1.5 hr	10% (10)	7	LO # 1,2,3,4,5,6,7,8,9,10
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Organic chemistry, bonds, dipolar couple type of hybridization, orbitals.
Week 2	Hydrocarbon: alkanes, formulation-Hydrocarbons-saturated.
Week 3	Alkene.
Week 4	Acetylene.
Week 5	Aromatic hydrocarbon.
Week 6	Aromatic hydrocarbon.
Week 7	Midterm Exam + Halogen compounds.
Week 8	Ethers. Alcohols.
Week 9	Phenols. Amines, derivatives of amine, diazonium salts.
Week 10	Aldehydes and ketones.
Week 11	Carboxylic acids.
Week 12	Esters.
Week 13	Amide.
Week 14	Cyclic compounds, Detection of organic functional groups using IR and UV.
Week 15	Practical organic chemistry physical properties of liquid and solid organic compounds, normal distillation and partial distillation.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	introduction of glasses and devices and material in lab
Week 2	Melting Point
Week 3	Boiling Point
Week 4	Crystallized the Pure Compound
Week 5	Extractions
Week 6	Solubility
Week 7	Recrystallization
Week 8	Midterm exam1

Week 9	Functional Group in organic compound
Week 10	simple distillation
Week 11	Fractional distillation
Week 12	Distillation under rarefied pressure
Week 13	Sublimation
Week 14	Midterm exam 2
Week 15	Preparation for final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Morrison & Boyd, Organic Chemistry, Prentice Hall	Yes
Recommended Texts	Bahl & Bahl, Advanced Organic Chemistry	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 (فقد المعالجة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Physics		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	107BEC		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College
Module Leader	Dr.WATAN JABER	e-mail	Watan.Hmood@alayan.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PHD
Module Tutor	NA	e-mail	E-mail
Peer Reviewer Name	NA	e-mail	E-mail
Scientific Committee Approval Date	1/11/2024	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. To understand the basics of physics 2. Learn about first law of Newton 3. Identifying the types of energy 4. Detention the electricity 5. Knowledge of Magnetic Fields, Magnetic force 6. Knowledge of Quantum theory of radiation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Questions and inquiries characterized by depth and accuracy. 2. Directing the student towards understanding the cause and reason. 3. Assigning the student some group activities and duties. 4. Conducting daily tests for the student 5. Scientific discussion on a regular basis
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعاً

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	38	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation					
تقييم الوحدة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (15)	5 and 10	
	Assignments	2	10% (10)	2 and 12	
	Projects / Lab.	0	0%		
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	2hr	15% (15)	7	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
البرنامج الأسبوعي النظري	
	Material Covered
Week 1-2	1. Physics and Measurement Standards of Length, Mass, and Time, Matter and Model Building, Dimensional Analysis, Conversion of Units
Week 3-4	2. The Force and Laws of Motion The Concept of Force, Newton's First Law, Mass, Newton's Second Law, The Gravitational Force and Weight, Newton's Third Law, Some Applications of Newton's Laws, Forces of Friction
Week 5-6	3. Static Equilibrium and Elasticity The Rigid Object in Equilibrium, The Center of Gravity, Examples of Rigid Objects in Static Equilibrium, Elastic Properties of Solids, Stress, Strain, and Elasticity Modulus
Week 7-8	4. Energy and its Conservation Systems and Environments, Work Done by a Constant Force, Kinetic Energy and the Work–Kinetic Energy Theorem Potential Energy of a System, The Isolated System, Power
Week 9-10	5. Electricity Properties of Electric Charges, Coulomb's Law, The Electric Field, Electric Field Lines, Electric Potential and Potential Difference, Definition and Calculating of Capacitance, Combinations of Capacitors, Capacitors with Dielectrics Electric Current, Resistance, Resistance and Temperature Electrical Power, Resistors in Series and Parallel, Electric Power, Electrical Safety
Week 11-12	6. Magnetism Magnetic Poles, Magnetic Fields, Magnetic force, Charged Particle move in a Magnetic Field, Mass Spectrometer, Cyclotron, Biot-Savart Law
Week 13-15	7. Quantum Physics Quantum theory of radiation, photo-electric effect, Einstein photo-electric effect, Compton effect, wave nature of particle, Heisenberg uncertainty principle, wave function, phase and

	group velocity, Schrodinger equation, quantum tunneling
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتعليم		
	Text	Available in the Library?
Required Texts	Uma Mukherji, " Engineering physics ", Alpha Science Ltd., Oxford. UK. 2007	Yes
Recommended Texts		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 (قييد الامتحان)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	English for Beginner		Module Delivery	
Module Type	Assistant		☐ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	101STU			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		2
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College	
Module Leader	ALI al Haqq		e-mail	Ali.Raad@teeng.alayen.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	MSc	
Module Tutor			e-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	1/11/2024	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	This course aims to the following : 1. To develop English language as an important skills in the world communication . 2. Assist the students how to speak properly like a native person. 3. Improve listening skills via listen to native English conversation., 4. Understand and develop the reading skills. 5. Learn how to use grammar properly. 6. Develop and improve their writing skills.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. Learn the students how to introduce their self. 2. Learn them to ask questions about where they are from . 3. Improve how to express themselves via arranging personal information . 4. Identify family members and Friend . 5. How to express their Favorite stuff 6. Learn how and where to live. 7. Express the past memories and action happened in the past. 8. Improve the students ability to declare thing in the present time. 9. Improve the ability of students to be more polite. 10. Improve the ability of students when they are leaving or moving places .
Indicative Contents المحتويات الإرشادية	English Language specification offers opportunities for students to develop their subject expertise by engaging creatively and critically with a wide range of texts and discourses. Students will create texts and reflect critically on their own processes of production, while analyzing the texts produced by others. Language is seen as a creative tool for expression and social connection, as well as for individual cognition. The study of language as a symbolic system used to assert power in society is also fundamental to the scope of this specification. The methods of analysis appropriate to the fields of English language/linguistics underpin all the elements of this specification, and these are applied to distinctive topic areas. This means that, for teaching purposes, there is a common core that all teachers and students need to understand but also discrete areas so that you can teach to your own specialisms and interests. There is also scope for students to pursue their own independent lines of enquiry and topics for writing, with support from their teachers, in the non-exam assessment. while the specification aims to maximise flexibility, so that the different components can be sequenced in any way appropriate to the pedagogic context in question, 'Language in Action', is by its very nature, synoptic, as it requires an ability to make connections across the course as a whole. Exposure to many different texts and discourses and a focus on aspects of textual variation will feed into the writing element of this component; and study of all the different areas of language variation, change and acquisition, as well as attitudes to language, enables students to choose a topic for the investigation.

	In summary, A-level English Language (beginner) specification offers a common core of analytical methods, topics and skills that have proven value, set within a flexible program that allows colleges to shape learning and teaching in ways appropriate to their particular contexts and constituencies. Thus widening options for students and ensuring that you are able to deliver a program of study that is coherent and manageable.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategy of this course is to develop learning English language as a good skill for communication around the world via practical exercise in the classes and activities such as reading some stories and listening to native English conversations and learning the right pronunciation . Encourage students to practice what they learn between them.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3 and 11	LO #1, #2 , and #9, #10
	Assignments	2	10% (10)	4 and 8	LO #3, #4 and #6, #7
	Projects / practical Listening .	2	10% (10)	5 and 12	
	Report	---	---	---	----
Summative assessment	Midterm Exam	1.5 hr	20% (20)	8	LO #1 - #7
	Final Exam	2 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction , Question with auxiliary verbs, Greeting , Numbers from 1-10.
Week 2	Possessive adjectives, Question using question words, Adjective, Numbers from 11-30.
Week 3	Learn about Jobs, Negative and question, personal information, Social expression (I).
Week 4	Possessive's , The family , have and has , The alphabet.
Week 5	Learn about Sport , Food and Drinks. Present simple . Language and nationalities. Number and prices.
Week 6	The time . Adverbs comes with present simple. Days of the week. Words come together.
Week 7	Pronouns. Rooms and furniture. Preposition. Direction. How to use Can?
Week 8	Mid-term Exam
Week 9	How to say years, past simple (regular verbs), Hot verbs (have, go, do).
Week 10	Past simple(irregular verbs), sort and leisure.. going sightseeing.
Week 11	How to use can / can't. Adverbs, adjective and nouns
Week 12	How to use I'd like, any and some. In the restaurant . Signs all around.
Week 13	Learn about colours and clothes. Present continuous. Opposite verbs.
Week 14	Learn about future , grammar revision, vocabulary revision, Social expressions (II).
Week 15	Preparation before final exams
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	New head way / beginner, John and Liz Soars, Oxford University Press.	Yes
Recommended Texts	English Grammar in Use Book with Answers: A Self-Study Reference and Practice Book for Intermediate Learners of English 5th Edition, by Raymond Murphy	No
Websites	https://www.bbc.co.uk/learningenglish/	

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Workshops		Module Delivery	
Module Type	Basic learning activities		☐ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	BETC109			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		1
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College	
Module Leader	Abbas KAMEL Ghadban		e-mail	Abbas.Kamel@alayen.edu.iq
Module Leader's Acad. Title	Assit . Lecturer		Module Leader's Qualification	Msc
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	E-mail
Scientific Committee Approval Date	1/11/2024		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of teaching engineering drawings encompass a range of objectives that are designed to provide students with the necessary knowledge and skills related to creating, interpreting, and using engineering drawings effectively.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The purpose of this module is to enable the student to have the practical skills for basic workshop practices e.g. Marking out, drilling, turning, milling and grinding. The student will also have practical exposure to various welding and joining processes. 1. Comply with workshop safety regulations. 2. Identify and use marking out tools, handtools, measuring equipment, and perform a range of machine operations to produce a given project to specific tolerances. 3. Apply knowledge of welding process selection and capabilities. 4. Describe the principles of automated manufacturing processes. . 5. Select and apply appropriate methodologies to quality control and inspection of welded joints.
Indicative Contents المحتويات الإرشادية	The indicative content does not cover all teaching possibilities. The teacher/tutor is encouraged to be creative in devising and implementing other approaches, as appropriate. The use of examples is there to provide suggestions. The tutor is free to use other examples, as appropriate. The indicative content ensures all learning outcomes are addressed but it may not follow the same sequence. It is the tutor's responsibility to ensure that all learning outcomes are included in the delivery of this programme module.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	there are some strategies that can be employed: 1. Hands-on Practice: Provide students with ample opportunities for hands-on practice in creating engineering workshops. This can include assignments, projects, Practical experience helps reinforce learning and enhances students' proficiency in applying drawing principles. 2. Visual Demonstrations: Utilize visual demonstrations, such as videos, animations, or real-life examples, to illustrate key concepts and techniques related to engineering workshops. These demonstrations can provide a clear and visual representation of how drawings are created and interpreted, helping students grasp the underlying principles effectively. 3. Interactive Discussions: Engage students in interactive discussions to promote critical thinking and deeper understanding of engineering drawings. Encourage students to analyze and interpret drawings, discuss the reasoning behind design choices, and explore alternative approaches. This fosters active learning and encourages students to think critically about the content. 4. Field Visits and Guest Speakers: Organize field visits to engineering firms or
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	construction sites where students can observe the application of engineering drawings in practice. Inviting guest speakers, such as industry professionals or experienced engineers, to share their expertise and experiences can provide valuable insights and enhance students' understanding of real-world applications. 5. Reflective Practice: Encourage students to engage in reflective practice by reviewing their own drawings, identifying strengths and weaknesses, and setting goals for improvement. Self-reflection promotes metacognition and helps students become more aware of their learning process and areas for growth. 6. By employing these learning and teaching strategies, educators can create an engaging and effective learning environment for students, promoting their understanding and proficiency in engineering drawings.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	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				
	Assignments	30	15% (15)	4, 9	LO # 1,2,3,4,5
	Report	3	15% (15)	7, 11, 15	LO # 1,2,3,4,5
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1,2,3,4,5
	Final Exam	3 hr	50% (50)	16	LO # 1,2,3,4,5
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	Safety Personal safety. Instruction on safe working procedures in the use of marking out, hand tools, and operation of machines and equipment.
Week 2	Measuring Equipment Care and use of marking out equipment including vernier height gauge, surface plate, vernier calipers, micrometers and dial indicator and files, hammers, hacksaws etc.
Week 3	hand tools العدد Include recognition of different tools. Employed for surface preparation and methods of application correctly, Devices of measuring dimensions, Calipers , types and uses , drill types and dimensions
Week 4	Measuring Tools أدوات القياس Steel miler , Veneer , Micrometer , Height & height gauge hand tools Saws , Hammers , Files , Scriber , Chisels , Taps and dies , Surface plate , Bench working.
Week 5	Welding Workshop ورشة اللحام Include recognition of tools and materials employed,
Week 6	Gas cylinder of oxy, Acetylene welding of surface
Week 7	Electrical are welding exercise, Welding spot.
Week 8	Lathing Workshop ورشة الخراطة lathe machine, Parts, Operation, Practice on longitudinal lathing ,
Week 9	Making center ,Puncturing ,Making external teeth ,Practice ,
Week 10	Employing measuring tools ,
Week 11	internal & external lath machining.
Week 12	Cars Workshop ورشة السيارات Modes of car motor operation,
Week 13	Fuel CPed pump, Electrical spark transfer device,
Week 14	Pistons in cylinder as motion transfer device to the front
Week 15	back wheels.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- Lawrence Smyth, Liam Hennessy 1996, <i>New Engineering Eechnology</i>, Educational Company Walkinstown [ISBN: 9780861674480] - Davies 1994, <i>Welding Science and Technology Vols. 1 & 2</i>, 10th Ed., Cambridge University Press	Yes
Recommended Texts		
Websites		

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Engineering Mechanics		Module Delivery	
Module Type	S		☒ Theory Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	108FEE			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		1
Administering Department	Fuel and Energy	College	Al Ayen Iraqi University- Engineering Technical College	
Module Leader	Bassim SABAH		e-mail	basim.mk@teeng.alayen.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	M.sc	
Module Tutor	NA		e-mail	NA
Peer Reviewer Name	NA		e-mail	NA
Scientific Committee Approval Date	1/11/2024	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات البرنامجية

Module Objectives أهداف المادة الدراسية	1. Studying the concepts of engineering mechanics and its applications in statics and dynamics 2. How to analyze the different stresses that acting on structures. 3. Analyze different forces , stresses& moments of structures. 4. How to find the center mass or gravity of bodies and determine the center pressure of submerged-bodies.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student will know the nature and types of forces. 2. The student recognizes the types of vowels and couplets. 3. The student will know the characteristics of balance. 4. The student will be familiar with the free body diagram. 5. The student will be familiar with the phonemes and structures. 6. The student will know the moment of inertia, the center of gravity and friction.
Indicative Contents المحتويات البرنامجية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	• By giving the theoretical material in a smooth and understandable manner. • Solving homework by the student. • Writing computer programs to solve some engineering issues.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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

Module Evaluation تقييم الوحدة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	
	Assignments	2	10% (10)	2 and 12	
	Projects / Lab.	0	0%		
	Report	1	10% (10)	13	
Summative assessment	Midterm Exam	1.5hr	20% (20)	10	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) البرنامج الأسبوعي النظري	
	Material Covered
Week 1	Basics of Statics: Fundamental principles & concepts: Vector algebra, Newton's laws, gravitation, force (external and internal, transmissibility), couple.
Week 2	moment (about point and about axis), Varignon's theorem, resultant of concurrent and non-concurrent coplanar forces, static equilibrium, free body diagram, reactions.
Week 3	Problem formulation concept; 2-D statics, two and three force members, alternate equilibrium equations
Week 4	Analysis of Structures Trusses: Assumptions, rigid and non-rigid trusses; Simple truss (plane and space), method of joints. Simple truss by method of sections. Compound truss (statically determinate, rigid, and completely constrained).
Week 5	Analysis of frames and machines. Beams: types of loading and supports; shear force, bending moment, and axial force diagrams. Shear force and bending moment diagrams and equations relating them with external load. Cables (coplanar): assumptions, parabolic and catenary cables.
Week 6	Friction Coulomb dry friction laws, simple surface contact problems, friction angles, types of problems, wedges. Disk friction (thrust bearing); Belt friction (flat, V).
Week 7	Square-threaded screw (self-locking, screw jack). Journal bearings (axle friction). Wheel friction and rolling resistance.

Week 8	Moments of Inertia First moment of mass and center of mass, centroids of lines, areas, volumes, composite bodies. Area moments- and products- of inertia, radius of gyration, transfer of axes, composite areas.
Week 9	Rotation of axes, principal area-moments-of-inertia, Mohr's circle. Second moment of mass, Mass moments- and products- of inertia, radius of gyration, transfer of axes
Week 10	flat plates (relation between area- and mass- moments- and products- of inertia), composite bodies. Rotation of axes, principal mass-moments-of-inertia.
Week 11	Basics of dynamics Rectilinear motion; Plane curvilinear motion (rectangular, path, and polar coordinates). 3D curvilinear motion; Relative and constrained motion.
Week 12	Newton's second law (rectangular, path, and polar coordinates). Work-kinetic energy, power, potential energy. Impulse-momentum (linear, angular); Impact (Direct and oblique).
Week 13	Plane kinematics of rigid bodies Rotation; Parametric motion. Relative velocity.
Week 14	instantaneous center of rotation. Relative acceleration, rotating reference frames. Rotating reference frames.
Week 15	3-part velocity and 5-part acceleration relations, Coriolis acceleration. Applications of rotating reference frames.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) البرنامج الأسبوعي للمختبر	
	Material Covered
Week 1	non
Week 2	non
Week 3	non
Week 4	non
Week 5	non
Week 6	non
Week 7	non

Learning and Teaching Resources
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مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	F. P. Beer and E. R. Johnston, 'Vector Mechanics for Engineers: Statics (V.1), Dynamics (V.2)', 3rd SI edition, TMH, 1998.	Yes
Recommended Texts	1. J. L. Meriam and L. G. Kraige, 'Engineering Mechanics: Statics (V.1), Dynamics (V.2)', 5 th ed, Wiley 2002. 2. H. Shames, 'Engineering Mechanics: Statics & Dynamics', 4 th ed, PHI, 1996.	Yes
Websites	non	

Grading Scheme مخطط الدرجات				
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	B - Very Good	جيد جداً	80 - 89	Above average with some errors
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	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
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