

وزارة التعليم العالي والبحث العلمي

جامعة الموصل

كلية هندسة النفط والتعدين

قسم هندسة المكامن النفطية



وزارة التعليم العالي  
والبحث العلمي

Ministry of Higher Education & Scientific Research

وصف المقررات

المرحلة الأولى (مسار بولونيا)

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Engineering Mechanics I (Statics)</b>		Module Delivery
Module Type	<b>S</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE 112</b>		
ECTS Credits	<b>6</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Ayad M. Ahmed Alwaise	e-mail	Ayad_waise@yahoo.com
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name: Sarah Saad Abduljabbar	e-mail	<a href="mailto:sarahaad3860707@uomosul.edu.iq">sarahaad3860707@uomosul.edu.iq</a>
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

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills and understanding of statics and applications physics theory through the application of techniques.</li> <li>2. To understand forces, Moments and equilibrium system.</li> <li>3. This course deals with the basic concept of Mechanical Engineering.</li> <li>4. This is the basic subject for all statics and forces applications.</li> <li>5. To understand concept of moment and forces problems.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Gain a foundational understanding of the fundamental physical and mathematical principles underlying mechanics.</li> <li>2. Apply analytical techniques to analyze and calculate resultant forces acting on bodies in equilibrium.</li> <li>3. Differentiate vector operations for normal forces, resultant moments, and couples</li> <li>4. Identify and interpret forces acting on bodies using the free-body diagram approach for problem-solving..</li> <li>5. Analyze equilibrium systems involving frictional forces.</li> <li>6. Determine the centroid of composite bodies and calculate the moment of inertia for a given body and specified axes</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Newton's Theory</u></p> <p>Statics is a type of science that helps people design safe and strong structures, like bridges and buildings. It's all about studying how things stay in place even when they are not moving. This is important for engineers and physicists who want to understand how materials react to different forces, like the ones that happen when an airplane takes off or lands. By studying statics, people can make better things and improve technology. [15 hrs.]</p> <p>Statics is a branch of mechanics that deals with the study of stationary objects and systems under the action of external forces. In other words, statics is concerned with the analysis of forces acting on objects that are not in motion. It is an essential subject for engineers and physicists as it is the foundation for the study of mechanics, which is the branch of physics that deals with the motion of objects. Statics is a crucial sub-topic of mechanics and is essential in engineering and physics courses. [15 hrs.]</p> <p>It deals with the study of forces acting on objects that are not moving. The primary objectives of statics are to determine the forces acting on an object, the moments of forces acting on an object, and the equilibrium conditions of an object. The study of statics is essential for the design of structures, such as bridges, buildings, and machines, to ensure that they are safe and reliable. [10 hrs.]</p> <p>Revision problem classes [6 hrs.]</p> <p>The study of statics is also important in understanding the behavior of materials under different conditions. It helps engineers and physicists to understand how different materials react to external forces and how they can be designed to withstand these</p>

	forces. For example, in aerospace engineering, the study of statics is essential in the design of aircraft and spacecraft to ensure that they can withstand the forces of takeoff, landing, and flight. In general, the study of statics is crucial for the development of new technologies and the improvement of existing ones. [15 hrs.]
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	The objective of this course is to enhance the ability of first-year students to predict and evaluate the impacts of forces, moments, couples, and distributed loads on bodies. The main approach employed in this course is to foster student engagement through active participation in discussions and problem-solving exercises. By doing so, students are encouraged to develop and refine their critical thinking skills, enabling them to analyze and understand the influence of applied forces on bodies. This approach is facilitated through classroom lectures, interactive tutorials, and the inclusion of real-life applications that capture students' interest and attention
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	63	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>150</b>		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #3
	<b>Assignments</b>	3	10% (10)	4,6 and 12	LO # 2,3, 4,5, and ,6
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #4, #5 and #6
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO # 1-4
	<b>Final Exam</b>	3hr	50% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction to engineering mechanics
<b>Week 2</b>	Newton's Second Law
<b>Week 3</b>	Forces and Resultant
<b>Week 4</b>	Forces and Resultant
<b>Week 5</b>	Moment
<b>Week 6</b>	Moment
<b>Week 7</b>	Moment of Couple
<b>Week 8</b>	Free body diagram
<b>Week 9</b>	Equilibrium
<b>Week 10</b>	Equilibrium
<b>Week 11</b>	Centroid
<b>Week 12</b>	Centroid
<b>Week 13</b>	Moment of Inertia
<b>Week 14</b>	Moment of Inertia
<b>Week 15</b>	Frictions
<b>Week 16</b>	Preparatory week before the final Exam

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Hibbeler, RC, "Engineering Mechanics Statics", 13th edition, 2013.	Yes
<b>Recommended Texts</b>	Meriam, James L., and L. Glenn Kraige, "Engineering mechanics: statics", John Wiley & Sons, 2012.	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – 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	<b>Mathematics 1</b>	Module Delivery	
Module Type	Basic learning activities	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PRE 113		
ECTS Credits	<b>6.00</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	UGI		
Administering Department	PRE	College	PMEUOM
Module Leader	Ziadoon M.Khaleel	e-mail	ziadoon.khaleel@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	MSc.
Module Tutor	UGI	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/6/2023	Version Number	1.0

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

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Apply mathematical principles and concepts to solve engineering problems.</li><li>2. Develop proficiency in mathematical modeling and analysis for engineering systems.</li><li>3. Use mathematical tools and techniques to optimize engineering designs and processes.</li><li>4. Foster critical thinking and problem-solving skills in an engineering context.</li><li>5. Enhance understanding of advanced mathematical topics relevant to engineering disciplines.</li><li>6. Bridge theoretical knowledge of mathematics with practical engineering applications.</li><li>7. Develop a strong foundation in mathematical techniques used in specific engineering disciplines.</li><li>8. Enhance quantitative reasoning skills for making informed engineering decisions.</li><li>9. Foster an appreciation for the role of mathematics in engineering and its significance in solving real-world problems.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1- Understand the transcendental functions, which include exponential, logarithmic, and trigonometric functions. the properties of exponential functions, such as exponential growth/decay, transformations, and applications. Learn about logarithmic functions, their properties, and their applications.</li><li>2- Explore trigonometric functions, including sin, cosin, and tangent, and understand their periodicity, graphs, and key properties.</li><li>3- studying of techniques integration, will help to Apply the fundamental theorem of calculus to evaluate definite and indefinite integrals.Utilize integration by substitution, integration by parts, and partial fractions to simplify integrals.</li><li>4- studying double and triple integrals, will be able Understand the concept of double and triple integrals as extensions of single-variable integration.</li><li>5- Demonstrate the ability to integrate knowledge and ideas of Partial Derivatives: By studying partial derivatives, the student will be able to Compute partial derivatives of functions of multiple variables.</li><li>6- Understand and apply the chain rule for functions of several variables Calculate directional derivatives and gradients. Understand and apply the concept of tangent planes and linear approximations. and Solve optimization problems using partial derivatives.</li><li>7- Understand the definition and basic concepts of differential equations. and Solve first&amp;second -order differential equations using various methods.</li><li>8- Apply differential equations to real-life applications in various fields.</li></ol>



<p style="text-align: center;"><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A – Mathematic Theory</u></b></p> <p>Functions and Limits: Definition and properties of functions , Domain, range, and graphing of functions [2 hrs], Limits and continuity of functions , Evaluating limits algebraically and graphically[2 hrs].</p> <p>Differentiation: Definition and interpretation of derivatives, Basic rules of differentiation: power rule[2 hrs], product rule, quotient rule [2 hrs], and chain rule. Implicit differentiation and related rates [2 hrs] , Applications of derivatives: optimization, curve sketching, and linear approximation[2 hrs].</p> <p>Applications of Differentiation: Maxima and minima: finding local and global extrema [2 hrs], Concavity and inflection points[2 hrs] , Curve sketching: determining the behavior of a function using derivatives[2 hrs]</p> <p>Integration: finite and indefinite integrals [2 hrs], Definite integrals and their interpretation as areas[2 hrs] ,Techniques of integration: substitution[2 hrs], integration by parts, trigonometric substitutions[2 hrs]. Applications of integration: area between curves[2 hrs], volume of solids of revolution[2 hrs].</p> <p><b>[ 30 hrs]</b></p> <p><b><u>Part B – Tutorial</u></b></p> <p>Functions and Limits: Domain, range, graphing of functions [2 hrs], Limits and continuity of functions [2hrs], Evaluating limits algebraically and graphically[2 hrs].</p> <p>Differentiation: chain rule[2 hrs]. Implicit differentiation and related rates [2 hrs] , Applications of derivatives: optimization [2hrs], curve sketching[2 hrs], and linear approximation[2 hrs].</p> <p>Applications of Differentiation: local and global extrema [2 hrs].</p> <p>Integration: finite and indefinite integrals [2 hrs], Definite integrals and their interpretation as areas[2 hrs] , substitution[2 hrs], integration by parts [2 hrs], trigonometric substitutions[2 hrs]. Applications of integration: area between curves, volume of solids of revolution[2 hrs].</p> <p><b>[ 30 hrs]</b></p> <p><b><u>Part c – Online</u></b></p> <p>Functions and Limits: Definition and properties of functions , Domain, range, and graphing of functions [1 hrs], Limits and continuity of functions , Evaluating limits algebraically and graphically[1 hrs].</p>
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	<p>Differentiation:  Definition and interpretation of derivatives, Basic rules of differentiation: power rule[1 hrs], product rule, quotient rule [1 hrs], and chain rule. Implicit differentiation and related rates [1 hrs] , Applications of derivatives: optimization, curve sketching, and linear approximation[1 hrs].</p> <p>Applications of Differentiation:  Maxima and minima: finding local and global extrema [1 hrs], Concavity and inflection points[1 hrs] , Curve sketching: determining the behavior of a function using derivatives[1 hrs]</p> <p>Integration:  finite and indefinite integrals [1 hrs], Definite integrals and their interpretation as areas[1 hrs] ,Techniques of integration: substitution[1 hrs], integration by parts, trigonometric substitutions[1 hrs]. Applications of integration: area between curves[1 hrs], volume of solids of revolution[1 hrs].</p> <p>[ 15 hrs]</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>Active Learning:  Encourage students to actively engage with the material through problem-solving, discussions, and interactive activities. Provide opportunities for students to work on problems individually and in groups, promoting critical thinking and understanding of concepts</p> <p>Conceptual Understanding:  Emphasize the underlying concepts and principles of calculus rather than focusing solely on procedures and calculations. Use real-world examples and applications to illustrate the relevance of calculus concepts.</p> <p>Problem-Solving Approach:  Encourage students to approach problem-solving strategically, emphasizing the importance of planning, organizing, and reasoning through each step.</p> <p>Use of Resources:  Utilize the textbook as a primary resource, complementing it with supplementary materials, including online resources, video tutorials, and practice exercises.</p> <p>Assessment and Feedback:  Use a variety of assessment methods, including quizzes, tests, projects, and problem sets, to evaluate students' understanding of calculus concepts. Provide timely and constructive feedback on students' work, highlighting areas of strength and areas for improvement.</p> <p>Collaboration and Discussion:  Foster a collaborative learning environment by encouraging students to work together, discuss concepts, and explain ideas to their peers. Incorporate group activities, such as problem-solving sessions, group projects, and presentations, to promote teamwork and peer learning.</p>

### Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	78	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>150</b>		

### Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #3, #4
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #5, #6 and #7, #8
	<b>Projects / Lab.</b>	0	0%		
	<b>Report</b>	0	0%		
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	20% (10)	7	LO #1 - #4
	<b>Final Exam</b>	3hr	60% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Real numbers, Intervals
<b>Week 2</b>	Review of functions & graphs
<b>Week 3</b>	derivatives & integrals of transcendental functions.
<b>Week 4</b>	derivatives & integrals of limits Functions.
<b>Week 5</b>	derivatives & integrals of exponential Function
<b>Week 6</b>	derivatives & integrals of logarithmic Function
<b>Week 7</b>	Mid-term Exam + Techniques of integration
<b>Week 8</b>	double & triple integrals
<b>Week 9</b>	Partial Derivatives
<b>Week 10</b>	Applications of Differentiation

<b>Week 11</b>	Differential equations
<b>Week 12</b>	definition, first & second order eqs
<b>Week 13</b>	Solve second order Differential equations
<b>Week 14</b>	Applications of first & second order eqs
<b>Week 15</b>	special functions
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	
<b>Week 2</b>	
<b>Week 3</b>	
<b>Week 4</b>	
<b>Week 5</b>	
<b>Week 6</b>	
<b>Week 7</b>	

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Thomas, G. B., Weir, M. D., & Hass, J. (2018). Thomas' Calculus (14th ed.).	No
<b>Recommended Texts</b>	Basic Engineering Mathematics , John Bird, BSc (Hons), CMath, CEng, CSci, FIMA, FIET, MIEE, FIEE, FCollT (Fifth edition)	No
<b>Websites</b>	<a href="https://mathworld.wolfram.com/">https://mathworld.wolfram.com/</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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	<b>English language I</b>		Module Delivery
Module Type	<b>B</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE114</b>		
ECTS Credits	<b>2</b>		
SWL (hr/sem)	<b>50</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Amira Rifae Hannawi	e-mail	amira.rifae@uomosul.edu.iq
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	MSc.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

## Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>	None	<b>Semester</b>	
<b>Co-requisites module</b>	None	<b>Semester</b>	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. to enable the learner to communicate effectively and appropriately in real life situation.</li> <li>2. to use English effectively for study purpose across the curriculum.</li> <li>3. to develop interest in and appreciation of language</li> <li>4. to develop and integrate the use of the language skills i.e. Reading, Speaking and Writing .</li> <li>5. to revise and reinforce structure and grammar already learnt.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none"> <li>1. Define The ability to read English with understanding the student is able to understand the total content</li> <li>2. Identify the ability to understand English when it is spoken.</li> <li>3. Promote the ability to write English correctly .</li> <li>4. Outline the correct usage of the grammatical items.</li> <li>5. Describing and Identify some concepts of petroleum and mining study to enhance students' lexicon of specific terms .</li> <li>6. List students' weaknesses in an attempt to strengthen and overcome them</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Present tense</u> Simple present tens , the uses of simple present tense , present continuous tense, present perfective tense, vocabularies . [15 hrs]</p> <p><u>Part B – past tense</u> Simple past tens , the uses of simple past tense , past continuous tense, past perfective tense, vocabularies . [15 hrs]</p> <p><u>Part c – future</u> Future forms, Hot verbs- take, put – Telephoning , Expressions of quantity. – 'ex'port and ex'port, Business expressions and numbers Modals and rel. [15hrs]</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>The main strategy that will be adopted in delivering English language is to encourage students' participation in the exercises, discussion and use brainstorming by asking many questions to keep in touch with the students . while at the same time refining and expanding their critical thinking skills and give and receive feedback from the students. 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 للطالب محسوب لـ ١٥ اسبوعا

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

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #3 #4and #6
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #1 #2 and #5
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #1#2 and #4
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	All
	<b>Final Exam</b>	3hr	50% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		



## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction - Simple present tens + vocabulary
<b>Week 2</b>	The uses of simple present tens + vocabulary
<b>Week 3</b>	present continuous tens + vocabulary
<b>Week 4</b>	Present perfective tense + vocabulary
<b>Week 5</b>	Present perfective continuous tense + vocabulary
<b>Week 6</b>	Examination
<b>Week 7</b>	Simple Past tense + vocabulary
<b>Week 8</b>	The uses of past tense + vocabulary
<b>Week 9</b>	Past continuous tense + vocabulary
<b>Week 10</b>	Past perfect tense + vocabulary
<b>Week 11</b>	Past perfective continuous tense + vocabulary
<b>Week 12</b>	Future forms, Hot verbs- take, put – Telephoning + vocabulary
<b>Week 13</b>	Expressions of quantity. – 'export and ex'port + vocabulary
<b>Week 14</b>	Business expressions and numbers + vocabulary
<b>Week 15</b>	Questions and negatives, - prefixes and antonyms, - Being polite +vocabulary
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	New-headway-plus-upper- intermediate-students-book. New-headway-plus-upperintermediate-students-workbook	No
<b>Recommended Texts</b>	Textbook and curriculums approved by the scientific committee and academic accreditation committee .	yes
<b>Websites</b>	<a href="#">Upper-Intermediate Fourth Edition   Headway Student's Site   Oxford University Press (oup.com)</a> <a href="#">Tenses in Academic Writing   English for Uni   University of Adelaide</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 DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	<b>Engineering Drawing</b>		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	<b>PRE 115</b>			
ECTS Credits	7			
SWL (hr/sem)	<b>175</b>			
Module Level	UGI	Semester of Delivery		One
Administering Department	PRE	College	PMEUOM	
Module Leader	Sarah Jamal Halata		e-mail	<a href="mailto:sarahjamal@umosul.edu.iq">sarahjamal@umosul.edu.iq</a>
Module Leader's Acad. Title	Assistant lecture	Module Leader's Qualification	MS.C	
Module Tutor		e-mail		
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	11/06/2023	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><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understanding the important of engineering drawing .</li> <li>2. Learning how to draw the shapes, angels and lines and others which is essential for engineer.</li> <li>3. Develop student’s imagination and ability to represent the shape size and specifications of physical objects.</li> <li>4. Understand the main idea of using dimension for engineering drawing.</li> <li>5. Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures. This will give students ability to draw three-dimension objects on the paper and to draw the pectoral drawings.</li> <li>6. Learning the principle of projection.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Knowing the aims of engineering.</li> <li>2. Using a correct way in using instruments in engineering drawing.</li> <li>3. Define the types of lines in engineering drawing.</li> <li>4. Summarize how can draw the shapes, angels and lines and others which is essential for engineer.</li> <li>5. Developing the ability to draw arcs and tangents.</li> <li>6. Identify the correct way for writing dimensions.</li> <li>7. Understanding how to draw any regular shape and ellipse.</li> <li>8. Explain and draw the isometric drawing.</li> <li>9. Explain the principle of projection.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b>Introduction about Engineering drawing and Instruments &amp;their use</b> The purpose of engineering drawing ,The tools that are used in engineering drawing and how it are using ,Fixing the sheets and Layout the sheets of drawing (9hrs).</p> <p><b>Types of line</b> Know all type of lines in engineering drawing and the which pencils are used to draw each type (3hrs).</p> <p><b>Constructional geometry</b> draw the single line, parallel lines by many method using triangles or by compass and dividing the line and angle to equal parts, Making tangents (6 hrs).</p> <p><b>Dimensions</b> Learn the roles of writing the dimensions and scales in engineering drawing (9hrs).</p> <p><b>Tangent arc</b> Learning the draw of arc tangents a line, arc tangents a point and arc tangents another arc (9hrs)</p> <p><b>Regular polygon and Ellipse</b> Triangles ,square , pentagon , hexagon &amp; the method of how to draw any regular polygon . (12hrs).</p> <p><b>Reverse curves (6hrs)</b></p>

	<p><b>Isometric drawing</b> Isometric drawing for objects contain perpendicular surfaces, include surfaces. and curved surfaces. (18hrs)</p> <p><b>Sketching (3hrs).</b></p> <p><b>Projections</b> The types and principle of projection(6hrs)</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>In this course the topics covered are based on syllabus for undergraduate studies in engineering. the lecture would be arranged in a sequences and starts from the basic concepts of geometrical construction and engineering curves and progress and isometric drawing to the principles of projections, the Strategies of this course include :</p> <p><b>Lectures:</b> theoretical subject will be explained through lecture.</p> <p><b>Classwork:</b> after all theoretical lectures the student draws and applies a exercise which achieves the aim of lecture.</p> <p><b>Homework :</b> every week , homework will be given to increase a skill of a student.</p>
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	93	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>175</b>		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 12	LO #1, #2,#3,#4,#6 and LO #8
	Classwork	14	15% (15)	2 - 15	All
	Homework	14	15% (15)	2- 15	All
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction about Engineering drawing, Instruments & their use
Week 2	Fixing the sheets, Types of line, Lettering, Layout the sheets of drawing
Week 3	Constructional geometry (draw the single line, parallel lines, dividing the line and angle, Making tangents
Week 4	Dimensions
Week 5	Scale, Units, Quiz
Week 6	Tangent arc (arc tangents a line, arc tangents a point)
Week 7	Tangent arc (arc tangents another arc), Midterm Exam
Week 8	Regular polygon (Triangles, square, pentagon, hexagon & the method of how to draw any regular polygon .
Week 9	Reverse curves.
Week 10	Ellipse (draw the ellipse by many methods)
Week 11	Isometric drawing for objects contain perpendicular surfaces.
Week 12	Isometric drawing for objects contain include surfaces ,Quiz
Week 13	Isometric drawing for objects contain curved surfaces
Week 14	Sketching.
Week 15	Projections

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Engineering drawing and Graphic technology by Thomas E.Freng, Charles J.Vierck ,1993. Robert J.Faster	Yes
<b>Recommended Texts</b>	Engineering Drawing (plane and solid geometry) by N. D. BHATT , 2011	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 – 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جداً	80 – 89	Above average with some errors
	<b>C</b> - Good	جيد	70 – 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 – 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – 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	<b>Human Rights and Democracy</b>		Module Delivery
Module Type	Basic		<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	<b>PRE 116</b>		
ECTS Credits	2		
SWL (hr/sem)	<b>50</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Dr Yasser Hassan Kddo	e-mail	dryasser.hassan@uomosul.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

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

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

أهداف المادة الدراسية	<p>أ- توعية الطالب بأهمية القانون في المجتمع.</p> <p>ب- تمكين الطالب من معرفة حقوقه وواجباته في الدولة القانونية .</p> <p>ج- تمكين الطالب من المهارات العملية للمطالبة العلنية بحقوقهم.</p> <p>د- مساهمة الطالب في بناء دولة القانون.</p>
مخرجات التعلم للمادة الدراسية	<p>الأهداف المعرفية:</p> <ol style="list-style-type: none"> <li>1. التعرف على مفهوم حقوق الإنسان وأهميتها.</li> <li>2. التعرف على أنواع حقوق الإنسان.</li> <li>3. التعرف على الحريات العامة في الدستور العراقي.</li> <li>4. دراسة الواقع العملي المحيط الطالب في الجامعة والمجتمع ، من الناحية القانونية.</li> <li>5. تعرف على انواع الأنظمة السياسية من حيث ممارسة السلطة.</li> <li>6. دراسة مبادئ الديمقراطية في الدستور العراقي.</li> </ol> <p>الأهداف المهاراتية الخاصة بالمقرر:</p> <ol style="list-style-type: none"> <li>1. تعليم الطالب مهارات الاختلاف بالرأي وقبول الرأي الآخر</li> <li>2. كيفية تنظيم طلب قانوني للمطالبة بالحقوق والحريات.</li> </ol>
المحتويات الإرشادية	<p>أ. نظرية الحق تعريف الحق وحقوق الإنسان وتعريف الديمقراطية وما الفرق بين الديمقراطية والحرية ب. أنواع الحقوق والحريات الأساسية والحقوق الاقتصادية والاجتماعية والثقافية</p> <p>ج. مصادر حقوق الإنسان في القانون الدول</p> <p>د. حقوق الإنسان أثناء السلم والحرب</p> <p>هـ. أنواع الأنظمة السياسية من حيث ممارسة السلطة الضمانات الدستورية القضائية لحقوق الإنسان</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

استراتيجيات التعلم	<ol style="list-style-type: none"> <li>1. المحاضرات النظرية .</li> <li>2. المناقشات داخل القاعة الدراسية.</li> <li>3. المقالات.</li> </ol>
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	31	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	19	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>50</b>		

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 #4, #5
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6
	Report	1	10% (10)	13	LO #4, #5 and #6
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	أن يتعرف الطالب على مفهوم حقوق الإنسان
Week 2	أن يتعرف الطالب على الخصائص العامة لحقوق الإنسان
Week 3	أن يتعرف الطالب على مراحل تطور حقوق الإنسان
Week 4	أن يتعرف الطالب على المبادئ العامة لحقوق الإنسان في الأديان السماوية
Week 5	أن يتعرف الطالب على مضامين حقوق المرأة والطفل في الدين الإسلامي
Week 6	أن يتعرف الطالب على المصادر الدولية لحقوق الإنسان في زمن السلم
Week 7	أن يتعرف الطالب على المصادر الدولية لحقوق الإنسان في زمن الحرب
Week 8	أن يتعرف الطالب على الحقوق المدنية والسياسية والاقتصادية والاجتماعية والثقافية في الدستور العراقي
Week 9	أن يتعرف الطالب على مفهوم الديمقراطية ومميزاتها ومقوماتها
Week 10	يتعرف الطالب على صور الديمقراطية (الديمقراطية المباشرة - الديمقراطية غير المباشرة - الديمقراطية شبه المباشرة
Week 11	أن يتعرف الطالب على أنواع الديمقراطية النيابية (النظام الرئاسي + النظام البرلماني )
Week 12	أن يتعرف الطالب على أنواع الديمقراطية النيابية (النظام المجلسي + النظام المختلط)
Week 13	أن يتعرف الطالب على أنواع الديمقراطية النيابية (النظام المجلسي + النظام المختلط)
Week 14	أن يتعرف الطالب على الضمانات الدستورية لتطبيق النظام الديمقراطي
Week 15	أن يتعرف الطالب على الضمانات القضائية لتطبيق النظام الديمقراطي
Week 16	الامتحان النهائي

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
الكتب المقررة المطلوبة	1.د. حميد حنون خالد ، حقوق الانسان ، مكتبة السنهوري ، بغداد ، 2-2009.د. ماهر صالح الجبوري وآخرون ، حقوق الإنسان والطفل والديمقراطية ، وزارة التعليم العالي والبحث العلمي ، العراق ، 2009 .	Yes
المراجع الرئيسية	1.د. حميد موحان عكوش و أباد خلف محمد ، الديمقراطية والحريات العامة ، ط1 ، مكتبة السنهوري ، بغداد ، 2013 2- د. حميد حنون خالد ، الأنظمة السياسية ، مكتبة السنهوري ، بغداد ، 2012 3- د. جواد الهنداوي ، القانون الدستوري والنظم السياسية ، دار المعارف للمطبوعات ، لبنان ، 2012	No

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - 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	<b>Geology for Engineer II</b>		Module Delivery
Module Type	<b>S</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE 117</b>		
ECTS Credits	<b>7</b>		
SWL (hr/sem)	<b>175</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Yasser Hassan Kddo	e-mail	dryasser.hassan@uomosul.edu.iq
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

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>The main objectives of the course are: This course aims in helping the students:</p> <ul style="list-style-type: none"> <li>• To know the basic of Plate tectonic theories and Continental drift hypothesis.</li> <li>• To introduce fundamental aspects of Plate tectonic boundaries.</li> <li>• Understand the Earth quake &amp; mountain building activity</li> <li>• Student will gain knowledge about Stress, Strain and Defomation.</li> <li>• To introduce fundamental aspects of Structural geology .</li> <li>• Student will gain knowledge about Folds, Joints and Faults.</li> <li>• To introduce fundamental aspects of paleontology.</li> <li>• To know the basic of fossilization and types of fossils.</li> <li>• To introduce fundamental aspects of Stratigraphy.</li> <li>• The student will get to learn in detail the Iraqi Stratigraphy.</li> <li>• To understand the Geological time scale.</li> <li>• Understanding the origin and accumulation aspects of hydrocarbon fields in Iraq.</li> </ul>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Upon successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Gain Knowledge about the history of Earth’s development.</li> <li>2. Historical development of continental movements.</li> <li>3. Learn how mountains, earthquakes and volcanic eruption occurs.</li> <li>4. Understand the different types of Folds and Faults</li> <li>5. Understand structural Petroleum traps.</li> <li>6. Learn how fossils formed and its applications was.</li> <li>7. Describe and identify fossils based on their morphology and their modification with time.</li> <li>8. Deal with Categories of Stratigraphic Classification</li> <li>9. Learn the development of life forms on the earth.</li> <li>10. Know Various aspects of the hydrocarbon system.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Continetnal drift hypotheis and plate tectonic theory.</u> (Alfered Wegner hypothesis- Plate tectonic- Convergent plate boundaries – Divergent plate boundaries – Transform plate boundaries). [10 hrs.]</p> <p><u>Part B- Structral geology</u></p> <ul style="list-style-type: none"> <li>– The description of folds – anticline – syncline – symmetrical fold – assymetrical folds – overturned folds) - Normal fault – reverse fault- thrust fault – Joints ) [15hrs]</li> </ul> <p><u>Part C- The Paleontology and Stratigraphy</u></p> <ul style="list-style-type: none"> <li>– Fossils – Microfossils – Index fossils- type of fossilization – Correlation and age determination. Principle of serigraphy – Lithostrigrphic units – Biostratigrphic units – Chronostrigraphic units. [20hrs]</li> </ul> <p><u>Part D – Geological time scale</u></p> <ul style="list-style-type: none"> <li>– Relative and absolute age- Precambrian- Phanerozoic – Paleozoic – Mesozoic and Cenozoic age) . [20hrs].</li> </ul> <p><u>Part F- Hydrocarbon Accumulation</u></p> <ul style="list-style-type: none"> <li>– Petroleum system – types of traps- types of kerogens – Iraqi Oil Fields</li> <li>– [15hrs]</li> </ul>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	This course is designed to give students a fundamental understanding of very important branches of geology, teach the understand how was morphologic earth change over time and how the modern contents formed. How crustal movement make up deformation like folds and faults and metamorphic rocks also study very. The course main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises to know how can use the student the tools like fossils in the petroleum exploration.
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## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	93	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>175</b>		

## Module Evaluation

### تقييم المادة الدراسية

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

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري



	<b>Material Covered</b>
<b>Week 1</b>	Introduction: Continental drift and Plate Tectonic theory.
<b>Week 2</b>	Plate Tectonic Boundaries
<b>Week 3</b>	Structural Geology
<b>Week 4</b>	Type of Folds
<b>Week 5</b>	Types of Faults and Joints
<b>Week 6</b>	Types of Petroleum Traps
<b>Week 7</b>	Paleontology and Fossils
<b>Week 8</b>	Microfossils
<b>Week 9</b>	Stratigraphy Principles
<b>Week 10</b>	Lithostratigraphic Units
<b>Week 11</b>	Biostratigraphic and Chronostratigraphic Units
<b>Week 12</b>	Geological Time Scale
<b>Week 13</b>	Paleozoic – Mesozoic – Cenozoic
<b>Week 14</b>	The Petroleum System
<b>Week 15</b>	Iraqi Oil Fields
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	<b>Material Covered</b>
<b>Week 1</b>	Contour maps and their interpretation - Exercises to predict trend of the outcrop of horizontal, vertical and inclined beds with respect to topography - Deciphering dip and strike of outcrops.
<b>Week 2</b>	Construction of map when 3 points over a bedding plane are given - Construction of vertical section - Order of superposition - vertical thickness of formation.
<b>Week 3</b>	Reading of folds and fault maps - Construction of vertical sections - Determination of ages of structures - Geological history.
<b>Week 4</b>	Solving simple dip and strike problems by Trigonometrical and graphic trigonometrical methods. al methods -determination of true thickness of beds by calculations - Three point problems by Training on surveying tools: theodolite , GPS, and other field instruments to create a geologic map & cross sections.
<b>Week 5</b>	Study the importance of macro fossils: Brachiopoda , Pelecepoda , Castropoda , Graptolites , Coral , Trilobite , Plants
<b>Week 6</b>	Study the importance of microfossils Foraminifera , Ostracoda , Pollen and Spores , nanocalcareous (thin section).
<b>Week 7</b>	Study the importance of microfossils Dinoflagellates, Acritarchs.

### Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Banger, K.M., 2004; Principles of Engineering Geology. Standard publisher's distributors. 1705-B,Nai Sarak,delhi-110006.	Yes
Recommended Texts	Parbin,S., 2004; Engineering and General geology. Six edition (revised and enlarged). S,K,Kataria and sons. J.S.Offset printers.	No
Websites	<a href="https://www.coursera.org/courses?query=geology">https://www.coursera.org/courses?query=geology</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><b>Note:</b> 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 DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Engineering Mechanics II (Dynamics)</b>	Module Delivery	
Module Type	Support or related learning activity	<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	<b>PRE 118</b>		
ECTS Credits	<b>5</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	UGI		
Administering Department	PRE	College	PMEUOM
Module Leader	Ayad M. Ahmed Alwaise	e-mail	E-mail; Ayad_waise@yahoo.com
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Sarah Saad Abduljabbar	e-mail	<a href="mailto:sarahaad3860707@uomosul.edu.iq">sarahaad3860707@uomosul.edu.iq</a>
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

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. To develop problem solving skills and understanding of dynamics and applications physics theory through the application of techniques.</li><li>2. To understand displacements, velocity and accelerations system.</li><li>3. This course deals with the basic concept of Mechanical Engineering.</li><li>4. This is the basic subject for all Dynamics and forces applications.</li><li>5. To understand concept of work and energy problems.</li><li>6. The forces that act on an object can be external, such as gravity, friction, or air resistance, or they can be internal, such as the forces that hold the particles of an object together</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>After completion of the course, the student should be able to:</p> <ol style="list-style-type: none"><li>1. Explain and calculate the centroid and moment of inertia for rigid bodies</li><li>2. Describe and calculate the motion (position, velocity, acceleration) for particles and solids in plane motion.</li><li>3. Apply free-body diagrams and solve Newton's 2nd law for plane problems.</li><li>4. Use different approaches to solve dynamic problems of particles in plane motion.</li><li>5. Understand the concepts of work, kinetic energy, potential energy relations, as well as linear and angular impulse and momentum</li><li>6. Analyze forces to describe the motion of rigid bodies using Newton's 2nd law directly or indirectly using work, energy, impulse, and momentum.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Dynamics is a branch of physics that deals with the study of motion and forces acting on a body. It is the study of how objects move, interact with each other, and respond to different forces. Dynamics is an important subject in physics, and it is used to explain many natural phenomena, from the movement of planets to the behavior of tiny particles. [15 hrs.]</p> <p>Dynamics is concerned with the motion of objects, and it is often used to describe the movement of objects in three dimensions. In dynamics, the focus is on understanding how forces affect the motion of an object. The forces that act on an object can be external, such as gravity, friction, or air resistance, or they can be internal, such as the forces that hold the particles of an object together. Dynamics is a complex subject, and it requires a deep understanding of physics and mathematics to fully grasp its principles. Dynamics is a fundamental part of physics, and it is used in many different fields, from engineering to astronomy. [15 hrs.]</p> <p>It deals with the study of forces acting on objects that are not moving. The primary objectives of Dynamics are to determine the forces acting on an object, the moments of forces acting on an object, and the equilibrium conditions of an object. The study of Dynamics is essential for the design of structures, such as bridges, buildings, and machines, to ensure that they are safe and reliable. [10 hrs.]</p> <p>Revision problem classes [6 hrs.]</p>

	The study of dynamics is also important in understanding the behavior of materials under different conditions. Understanding dynamics is crucial in the design and construction of machines and structures, as it allows engineers to predict how these objects will behave under different forces. In astronomy, dynamics is used to study the movement of planets and stars, and it is used to predict the behavior of celestial bodies over time. As such, dynamics is a critical subject in physics, and it is essential for anyone who wants to study the natural world in depth. [15 hrs.]
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	The main approach for delivering this module is to foster student engagement and enhance their critical thinking abilities through active participation in exercises. This will be achieved by conducting classes, interactive tutorials, and incorporating captivating experiments that involve practical sampling activities.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	63	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>125</b>		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	3	10% (10)	3,5 and 10	LO #1, 2, and 5
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6,
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	13	LO #4, #5 and #6
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #3
	<b>Final Exam</b>	3hr	60% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Centroid
Week 2	Moment of Inertia
Week 3	Frictions
Week 4	Introduction to engineering mechanics (Dynamics)
Week 5	Rectilinear Kinematics: Continuous Motion
Week 6	Rectilinear Kinematics: Continuous Motion
Week 7	Rectilinear Kinematics: Erratic Motion
Week 8	General Curvilinear Motion
Week 9	General Curvilinear Motion
Week 10	Motion of a Projectile
Week 11	Absolute Dependent Motion Analysis of Two Particles
Week 12	Absolute Dependent Motion Analysis of Two Particles
Week 13	The Work of a Force
Week 14	The Work of a Force
Week 15	Principle of Work and Energy
Week 16	Preparatory week before the final Exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	R. C. Hibbeler, <b>Engineering Mechanics: Dynamics</b> 13th edition	Yes
<b>Recommended Texts</b>	J.L. Meriam, L.G. Kraige and J. N. Bolton. <b>Engineering Mechanics: Dynamics</b> 8th edition, 2015.	No
<b>Websites</b>		

## Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – 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	<b>Mathematics 2</b>		Module Delivery
Module Type	<b>B</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE 119</b>		
ECTS Credits	<b>6</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Ziadoon M.Khaleel	e-mail	ziadoon.khaleel@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	MSc.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/6/2023	Version Number	1.0

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



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Apply mathematical principles and concepts to solve engineering problems.</li><li>2. Develop proficiency in mathematical modeling and analysis for engineering systems.</li><li>3. Use mathematical tools and techniques to optimize engineering designs and processes.</li><li>4. Foster critical thinking and problem-solving skills in an engineering context.</li><li>5. Enhance understanding of advanced mathematical topics relevant to engineering disciplines.</li><li>6. Bridge theoretical knowledge of mathematics with practical engineering applications.</li><li>7. Develop a strong foundation in mathematical techniques used in specific engineering disciplines.</li><li>8. Enhance quantitative reasoning skills for making informed engineering decisions.</li><li>9. Foster an appreciation for the role of mathematics in engineering and its significance in solving real-world problems.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Apply mathematical principles and concepts to solve engineering problems. Define polar coordinates as an alternative coordinate system to Cartesian coordinates. Understand the representation of points in polar coordinates using the radial distance (<math>r</math>) and angle (<math>\theta</math>).</li><li>2. Conversion between Polar and Cartesian Coordinates: Convert between polar coordinates (<math>r, \theta</math>) and Cartesian coordinates (<math>x, y</math>) using trigonometric relationships. Express equations and curves in polar form and convert them to Cartesian form, and vice versa.</li><li>3. Graph polar equations and understand the relationship between the shape of the graph and the equation's parameters. Plotting Points and Graphs in Polar Coordinates.</li><li>4. Polar Functions and Equations: Identify and analyze different types of polar equations, including circles, cardioids, limaçons, and roses Determine the symmetry and properties of polar equations based on their equations and parameters.</li><li>5. Understanding Vectors and Scalars: Differentiate between vectors and scalars and understand their properties. Distinguish between position vectors, displacement vectors, and other types of vectors in various contexts.</li><li>6. Vector Algebra and Geometry: Apply vector algebraic operations to solve problems involving vector quantities. Understand geometric interpretations of vector operations, such as vector addition and scalar multiplication.</li><li>7. understanding Taylor and Maclaurin series</li><li>8. Understanding the Laplace Transform: Define the Laplace transform as an integral transform that converts a function of time into a function of a complex variable. Understand the properties and conditions for the existence of the Laplace transform. Recognize the Laplace transform as a powerful tool for solving differential equations and analyzing systems.</li><li>9. Define Fourier series as a representation of a periodic function as an infinite sum of sin and cosin functions (or complex exponentials). Understand the concept of periodicity and the fundamental period of a function. Recognize Fourier series as a tool to analyze and approximate periodic functions.</li></ol>

<p style="text-align: center;"><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b><u>Part A – Mathematic Theory</u></b></p> <p>Polar Coordinates: Introduction to polar coordinates [2 hrs], change of variable from Cartesian to polar[2 hrs] , Transformation of coordinates . Cartesian , cylindrical , spherical and bipolar coordinate [2 hrs].</p> <p>Vectors and Scalars: Vectors and scalars [2 hrs], gradient of scalar fields [2 hrs] , vector fields and their divergence and curl line and surface integral[2 hrs]. Taylor and Maclaurin series [2 hrs]. differentiation of analytical function [2 hrs]. Integral transform [2 hrs]. Laplace transform [4 hrs]. Fourier series [2 hrs]. solution of potential [2 hrs]. Fourier transform, digital filtering process [2 hrs]. complex numbers. [2 hrs]. <b>[ 30 hrs]</b></p> <p><b><u>Part B – Tutorial</u></b></p> <p>Polar Coordinates: change of variable from Cartesian to polar[2 hrs] , Transformation of coordinates . Cartesian , cylindrical , spherical and bipolar coordinate [4 hrs].</p> <p>Vectors and Scalars: Vectors and scalars [2 hrs], gradient of scalar fields [2 hrs] , vector fields and their divergence and curl line and surface integral[2 hrs]. Taylor and Maclaurin series [2 hrs]. differentiation of analytical function [2 hrs]. Integral transform [2 hrs]. Laplace transform [4 hrs]. Fourier series [2 hrs]. solution of potential [2 hrs]. Fourier transform, digital filtering process [2 hrs]. complex numbers. [2 hrs]. <b>[ 30 hrs]</b></p> <p><b><u>Part c – Online</u></b></p> <p>Polar Coordinates: change of variable from Cartesian to polar[1 hrs] , Transformation of coordinates . Cartesian , cylindrical , spherical and bipolar coordinate [2 hrs].</p> <p>Vectors and Scalars: Vectors and scalars [1 hrs], gradient of scalar fields [1 hrs] , vector fields and their divergence and curl line and surface integral[1 hrs]. Taylor and Maclaurin series [1 hrs]. differentiation of analytical function [1 hrs]. Integral transform [1 hrs]. Laplace transform [2 hrs]. Fourier series [1 hrs]. solution of potential [1 hrs]. Fourier transform, digital filtering process [1 hrs]. complex numbers. [1 hrs]. <b>[ 15 hrs]</b></p>
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## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<b>Active Learning:</b> Encourage students to actively engage with the material through problem-solving, discussions, and interactive activities. Provide opportunities for students to work on problems individually and in groups, promoting critical thinking and understanding of concepts
	<b>Conceptual Understanding:</b> Emphasize the underlying concepts and principles of calculus rather than focusing solely on procedures and calculations. Use real-world examples and applications to illustrate the relevance of calculus concepts.
	<b>Problem-Solving Approach:</b> Encourage students to approach problem-solving strategically, emphasizing the importance of planning, organizing, and reasoning through each step.
	<b>Use of Resources:</b> Utilize the textbook as a primary resource, complementing it with supplementary materials, including online resources, video tutorials, and practice exercises.

## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	78	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>150</b>		

## Module Evaluation

تقييم المادة الدراسية

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

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction to polar coordinates
<b>Week 2</b>	change of variable from Cartesian to polar
<b>Week 3</b>	Vectors and scalars
<b>Week 4</b>	gradient of scalar fields
<b>Week 5</b>	vector fields and their divergence and curl line and surface integral.
<b>Week 6</b>	Transformation of coordinates . Cartesian , cylindrical , spherical and bipolar coordinate
<b>Week 7</b>	Taylor and Maclaurin series
<b>Week 8</b>	differentiation of analytical function
<b>Week 9</b>	Integral transform
<b>Week 10</b>	Laplace transform
<b>Week 11</b>	Systems of equations,
<b>Week 12</b>	Fourier series
<b>Week 13</b>	solution of potential Eqs., heat eq. & wave eq. ,numerical solution of partial Differential eqs.
<b>Week 14</b>	Fourier transform, digital filtering process
<b>Week 15</b>	complex numbers.
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas, G. B., Weir, M. D., & Hass, J. (2018). Thomas' Calculus (14th ed.).	No
Recommended Texts	Basic Engineering Mathematics , John Bird, BSc (Hons), CMath, CEng, CSci, FIMA, FIET, MIEE, FIIE, FCollT (Fifth edition)	No
Websites	<a href="https://mathworld.wolfram.com/">https://mathworld.wolfram.com/</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 DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>English language II</b>		Module Delivery
Module Type	<b>B</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE120</b>		
ECTS Credits	<b>2</b>		
SWL (hr/sem)	<b>50</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Amira Rifae Hannawi	e-mail	<a href="mailto:amira.rifae@uomosul.edu.iq">amira.rifae@uomosul.edu.iq</a>
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	MSc.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	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

<b>Module Objectives</b> أهداف المادة الدراسية	<ol style="list-style-type: none"><li>1. to enable the learner to communicate effectively and appropriately in real life situation.</li><li>2. to use English effectively for study purpose across the curriculum.</li><li>3. to develop interest in and appreciation of language</li><li>4. to develop and integrate the use of the language skills i.e. Reading, Speaking and Writing .</li><li>5. to revise and reinforce structure and grammar already learnt.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none"><li>1. Define The ability to read English with understanding the student is able to understand the total content</li><li>2. Identify the ability to understand English when it is spoken.</li><li>3. Promote the ability to write English correctly .</li><li>4. Outline the correct usage of the grammatical items.</li><li>5. Describing and Identify some concepts of petroleum and mining study to enhance students' lexicon of specific terms .</li><li>6. List students' weaknesses in an attempt to strengthen and overcome them</li><li>7. Encourage student to write reports about different topics .</li><li>8. Enforce their language by giving them assignment that strengthen the method of research and writing</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>types of sentences</u></p> <p>An affirmative sentence ( a declarative or assertive) sentence, and it can be either a simple, complex or compound sentence as long as it is positive , Negative and interrogative sentences . [15hrs]</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>The main strategy that will be adopted in delivering English language is to encourage students' participation in the exercises, discussion and use brainstorming by asking many questions to keep in touch with the students. In this course we will also encourage students how to write, read and discuss different scientific topics. While at the same time refining and expanding their critical thinking skills and give and receive feedback from the students. 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 للطالب محسوب لـ ١٥ اسبوعا

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

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	6 and 12	LO #3 #4and #6
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #1 #2 and #5 #8
	<b>Report</b>	1	10% (10)	13	LO #1#2 and #4 #7
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	All
	<b>Final Exam</b>	3hr	60% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		



## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Simple sentence + reading and listening scientific passage
Week 2	Compound sentence + reading and listening scientific passage
Week 3	Complex sentence + reading and listening scientific passage
Week 4	Affirmative sentence (declarative or assertive ) + reading and translating scientific passage
Week 5	Negative, positive and interrogative sentences + reading and listening scientific passage
Week 6	Examination
Week 7	Numbers and Measurement + reading and translating scientific passage
Week 8	Describing Equipment + reading and translating scientific passage
Week 9	Giving Instructions + reading and translating scientific passage
Week 10	Safety + reading and translating scientific passage
Week 11	Describing Systems + reading and translating scientific passage
Week 12	Making Comparisons + reading and translating scientific passage
Week 13	Describing Processes + reading and translating scientific passage
Week 14	Expressing Possibility + reading and translating scientific passage
Week 15	Countable/uncountable nouns How much/how many + reading and translating scientific passage
Week 16	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

### المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Levrai. P (2020) English for Oil and Gas FOUNDATION COURSE .TTLINTERNATIONAL Frendo.E with Bonamy, D(1997) English for the Oil industry , PEARSON LONGMAN .	No
Recommended Texts	Textbook and curriculums approved by the scientific committee and academic accreditation committee.	No
Websites	<a href="https://academicguides.waldenu.edu/writingcenter/scholarlyvoice/sentencestructure">https://academicguides.waldenu.edu/writingcenter/scholarlyvoice/sentencestructure</a> <a href="https://byjus.com/english/types-of-sentences/">https://byjus.com/english/types-of-sentences/</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><b>Note:</b> 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 DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	<b>Engineering Drawing using computer</b>		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	<b>PRE 121</b>			
ECTS Credits	5			
SWL (hr/sem)	<b>125</b>			
Module Level	UGI	Semester of Delivery		Two
Administering Department	PER	College	PMEUOM	
Module Leader	Sarah Jamal Halata		e-mail	<a href="mailto:sarahjamal@umosul.edu.iq">sarahjamal@umosul.edu.iq</a>
Module Leader's Acad. Title	Assistant lecture		Module Leader's Qualification	MS.C
Module Tutor			e-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	11/06/2023	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><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understanding the advantage of engineering drawing using computer.</li> <li>2. Knowing how to save and export files and adjustment the size and units.</li> <li>3. Knowing all the menu in the menu bar.</li> <li>4. Learning each command in the Draw list.</li> <li>5. Learning each command in the Modify list.</li> <li>6. Understand how to draw 2D in AutoCAD.</li> <li>7. Understand how modify any shapes.</li> <li>8. Explain and draw the projections of 3D shapes.</li> <li>9. Conclusion the 3D shapes from there projection.</li> <li>10. Learning the principle of 3D shapes</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Define the advantage of using computer in engineering drawing.</li> <li>2. Explain the contents of the window of AutoCAD programs.</li> <li>3. Adjustment the boundary of screen and units.</li> <li>4. Develop skills in using every command in Draw list &amp; Modify list.</li> <li>5. Developing the ability to draw 2D shapes with explain all dimensions.</li> <li>6. Ably to change properties of lines .</li> <li>7. Conclusion the projections of 3D shapes.</li> <li>8. Explain and draw the isometric drawing.</li> <li>9. Conclusion the isometric drawing from projections.</li> <li>10. Develop skills in 3D .</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b>Introduction about computer and AutoCAD</b> component of AutoCAD screen , Title bar ,Menu bar , properties,. Make a new drawing, saving , Adjustment the boundary of screen and units ,command line. (12hrs).</p> <p><b>Draw list</b> Line ,Xline, circle, polygon ,, Arc ,polyline, point ,Ellipse ,Text ,Block (12hrs).</p> <p><b>Modify list</b> Erase ,offset ,copy , Rotate , Array ,Trim ,Extend , Mirror ,Move , Explode ,Fillet , Chamfer (12hrs).</p> <p><b>Object snap , Polar tracking ,</b> <b>Dimensions.</b>(6hrs)</p> <p><b>Projection</b> Introduction about projections , Type of projections , projections in third angle , projection of objects contain perpendicular surface only , projection of objects contain include surface, projection of curved surfaces(12hrs).</p> <p><b>Finding a missing view , Section.</b> (6hrs).</p> <p><b>Isometric drawing</b></p>

	<p>Isometric drawing for objects contain perpendicular surfaces, include surfaces. and curved surfaces. (12hrs)</p> <p><b>3D in AutoCAD</b></p> <p>Introduction about 3D in AutoCAD(6hrs).</p> <p><b>Assembly , finding the 3D viewing from projection</b> (6hrs).</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>In this course the topics covered are based on syllabus for undergraduate studies in engineering. the lecture would be arranged in a sequences and starts from the knowing about all menus in menu bar and the commands of , the Strategies of this course include :</p> <p><b>Lectures:</b> theoretical subject will be explained through lecture.</p> <p><b>Classwork:</b> after all theoretical lectures the student draws and applies a exercise which achieves the aim of lecture.</p> <p><b>Homework :</b> every week , homework will be given to increase a skill of a student.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	93	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>+</b> <b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	32	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>125</b>		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	6 and 11	LO #1, #2,#3,#4,#5,#6 and LO#7.
	<b>Classwork</b>	14	15% (15)	2 – 15	All
	<b>Homework</b>	14	15% (15)	2- 15	All
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #6
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction about computer and AutoCAD , component of AutoCAD screen , Title bar ,Menu bar , properties.
<b>Week 2</b>	Make a new drawing , saving ,unite , boundary of screen ,command line.
<b>Week 3</b>	Draw list Line, Xline, circle, polygon
<b>Week 4</b>	Draw list Arc ,polyline, point ,Ellipse ,Text ,Block
<b>Week 5</b>	Modify list Erase ,offset ,copy , Rotate ,properties .
<b>Week 6</b>	Modify list Array ,Trim ,Extend , Mirror ,Move , Explode ,Fillet , Chamfer , Quiz
<b>Week 7</b>	Object snap , Polar tracking , Midterm Exam
<b>Week 8</b>	Dimensions.
<b>Week 9</b>	Projection Introduction about projections , Type of projections , projections in third angle , projection of objects contain perpendicular surface only.
<b>Week 10</b>	projection of objects contain include surface, projection of curved surfaces.
<b>Week 11</b>	Finding a missing view , Section, Quiz.
<b>Week 12</b>	Isometric drawing for objects contain perpendicular surfaces.
<b>Week 13</b>	Isometric drawing for objects contain include surfaces, Isometric drawing for objects contain curved surfaces
<b>Week 14</b>	3D in AutoCAD Introduction about 3D in AutoCAD
<b>Week 15</b>	Assembly , finding the 3D viewing from projection

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Engineering drawing from first principles using AutoCAD by Dennis Maguirs.	NO
<b>Recommended Texts</b>	A Student Guide for In-Depth Coverage of AutoCAD's AutoCAD 2023 Instructor, James Leach ,Shawna Lockhart, 2023.	NO
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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	<b>Principles of Petroleum Engineering</b>		Module Delivery
Module Type	<b>Core</b>		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>PRE122</b>		
ECTS Credits	<b>5</b>		
SWL (hr/sem)	<b>125</b>		
Module Level	UGI	Semester of Delivery	
Administering Department	PRE	College	PMEUOM
Module Leader	Mahmood Salman Ahmed	e-mail	mahmood.salman@uomosul.edu.iq
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	

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><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. 1.To develop problem solving skills and understanding petroleum origin theories .</li> <li>2. To understand chemical composition of petroleum.</li> <li>3. This course deals with the basic concept of petroleum system.</li> <li>4. To understand problems mud drilling.</li> <li>5. To study physical properties of rocks.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize how flow fluids in rocks.</li> <li>2. List the various terms associated with petroleum.</li> <li>3. Summarize what is meant by petroleum system.</li> <li>4. Discuss the physical properties of the reservoir rocks.</li> <li>5. Define the porosity and permeability of the rocks.</li> <li>6. Identify the basic elements and processes of the petroleum system.</li> <li>7. Discuss properties the drilling mud.</li> <li>8. Explain the drilling engineering.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A -</u> Petroleum Engineering ,petroleum geologist, Reservoir engineering ,Drilling engineers, Production engineering . [10 hrs]</p> <p>Origin of petroleum ,In organic theory , Organic theory, Chemical of petroleum. [10 hrs]</p> <p>Petroleum system, Element of petroleum system, processes of petroleum system . [10 hrs]</p> <p>Revision problem classes [8 hrs]</p> <p>Drilling rig components, Types and uses of drilling mud, Drilling problems and their treatments .[10 hrs]</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	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

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	<b>125</b>		

## Module Evaluation

### تقييم المادة الدراسية

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

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction
Week 2	Chemical composition of petroleum
Week 3	Petroleum system (elements + processes)
Week 4	Physical properties of reservoir rocks (porosity & classification of porosity)
Week 5	Physical properties of reservoir rocks (permeability & saturation)
Week 6	Physical properties of crude oil
Week 7	Physical properties of natural gas
Week 8	Exam 1
Week 9	Volumetric estimates & recoverable reserves
Week 10	Phase diagram & classification of petroleum reservoirs
Week 11	Classification of crude oil reservoirs
Week 12	Classification of natural gas reservoirs
Week 13	Drilling Engineering ( Rotary drilling)
Week 14	Drilling Engineering ( Casing + Cementing)
Week 15	Exam 2

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Lectures of “Fundamental Of Petroleum Engineering” by Hamid M.F. and Suleiman W.R.W. ,University Technology Malaysia, Faculty of Petroleum &Renewable Engineering, Department of Petroleum Engineering.	Yes
Recommended Texts	Petroleum geology e. textbook , S.L. Bend 2008 Petroleum geology , F.K. North 1985 Applied subsurface geological mapping , Tearpock and Bischke 1991 Geology of petroleum , A.I. Levorsen , 1958 Introduction to petroleum engineering , John R. Fanchi and Richardl . Christiansen,2017 Elements of Petroleum Geology, Selley, R.C. and S.A. Sonnenberg (2015): Third Edition, San	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
<p><b>Note:</b> 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>				