Ministry of Higher Education and Scientific Research

Al-Qasim Green University/ College of Engineering

Water Resources Engineering Management Department

"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Mathematics 1**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2601**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	**1**		**Semester**	**1**	
Department	**Water Resources Engineering**		**College**	**College of Engineering**	
Module Leader	**Ahlam Hamid Jasim**		**E-mail**	**ahlam.hamid@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Assist Professor**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Ahlam Hamid Jasim**		**e-mail**	**ahlam.hamid@wrec.uoqasim.edu.iq**	
Peer Reviewer Name	**N.A.**		**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/11/2023**		**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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Relation with other Modules: -

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	
COURSE DESCRIPTION:	Mathematics is an essential module in the learning chain of Management engineering. The module is comprising of Coordinates and graphs in the plane, Distance between two points and between point to a line Slopes and equations for lines and circle equation, functions and their graphs, the limits of functions, differentiation, and integration methods.
Module Aims أهداف المادة الدراسية	The content of the module was designed to achieve the aims of providing skills in the application of fundamental Mathematics concepts that underpin all of Engineering. To encourage the development of problem solving as required in other Year 1 modules and in order that more advanced material can be tackled in modules taught in later years. Also, this module is aiming to develop an understanding of the principles of general basic mathematical techniques of relevance to Engineers and develop sufficient mathematical competence to cope with the compulsory content of a Management Engineering degree.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the completion of the course, students are expected to be able to:** 1. Develop knowledge and understanding of mathematical principles to underpin their engineering education and understanding of the principles of general basic mathematical techniques relevant to Management Engineers 2. Recognise and be able to determine the non-uniforms areas and volumes techniques to solve engineering-based problems. 3. Make appropriate assumptions to simplify and thus model real-life Engineering problems. 4. Analyse models using basic mathematical techniques including the derivative of functions and integration techniques. 5. Appreciate physical situations where mathematical techniques such as differentiation and integration are useful and develop knowledge of understanding mathematical models and their limitations.

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	6. have confidence in their mathematical abilities so that when this mathematics arises in the solution of an engineering problem, they can understand (rather than merely accept) the results.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** 1-Thomas Calculus 11th edition. 2-Advanced Engg. Mathematics Erwin Kreyszig. 3-Methods of Applied Mathematics F.B.Hilderbrand.

Week	hours	Topics Covered
1	4	***Coordinates and Graphs in The Plane, Introduction***
2	4	***Equations for lines, Functions***
3	4	***Distance between Two Points, & and between Point to a Line***
4	4	***Slopes and Equations for Lines, Point Slope Equation, – Intercept Equation, Distance, Slopes of Non – Vertical Lines,***
5	4	***General Equation for the Line*** ***Functions and Their Graphs***
6	4	***Intervals and inequalities***
7	4	***Domain and range***
8	4	***Even and Odd Functions***
9	4	***Functions graph***
10	4	***Functions graph***
11	4	***Functions defined in pieces and composition of function***

12	4	***Exponential and logarithm functions, trigonometric function***
13	4	***the inverse trigonometric functions, hyperbolic functions***
14	4	***Inverse hyperbolic functions, problems***
15	4	***The derivative of the inverse hyperbolic functions. Problems.***
16	4	***Preparatory week before the final Exam***

Learning Outcomes and Assessment Methods

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Coordinates and Graphs in The Plane, Introduction, Distance between Two Points, Symmetry & Intercepts	1,3	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks , discussions during lectures, Written Exams.
Topic II: - Slopes and Equations for Lines, Point Slope Equation, Slope – Intercept Equation, Distance between Point to a Line, Slopes of Non – Vertical Lines, General Equation for the Line	2,3,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic III: - Functions and Their Graphs, Domain, and Range, Even and Odd Functions	1,2	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic IV: - Limit Combination Theorem, The Limit of Trigonometric Functions Infinity as a Limit	4,5	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.

Topic V: - Derivative Rules Implicit Differentiation and Fractional Powers Chain Rule	4, 5	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic VI: - Derivatives of Trigonometric Functions Derivatives of Exponential & Logarithmic Functions Applications on Derivatives	4,5,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic VII: - Integrations, methods, and applications	4,5,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	3	25% (25)	3,7, 10	ALL
	Assignments & H.W.	4	5% (5)	2,6,9,12	ALL
	Discussions During Lectures	5	5% (5)	Continuous	ALL
	Reports	1	5% (5)	10	ALL
Summative assessment (60%)	**Midterm Exam (10%)**	2hr	10% (10)	12	ALL
	Final Exam (50%)	3hr	50% (50)	16	ALL
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured USWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	3	45
Lab.					
Tutorial			15	1	15
Self Study		Self Study	15	2	30
Study in library		Study in library	12	2	24
Quizzes		Preparation for the Quizzes	6	2	12
Discussions During Lectures			3	2	6
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	0	0	0
Seminar	Presenting a Seminar		0	0	0
		Preparation for the Project			
Assignments, Homework		Preparation for the H.W.	3	2	6
Report		Preparation for the Report	0	0	0
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		1	2	2
Final Exam (50%)		Preparation for the Exam.			
	Evaluation		1	5	5
		Total SWL (hr/ Semester)			150
		ECTS			6

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**ENGINEERING MECHANICS I**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2602**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	**1**		**Semester**	**1**	
Department	**Water Resources Engineering**		**College**	**College of Engineering**	
Module Leader	**Mustafa Kareem Hamzah**		**E-mail**	**Mustafa.kareem@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Mustafa Kareem Hamzah**		**e-mail**	**Mustafa.kareem@wrec.uoqasim.edu.iq**	
Peer Reviewer Name	**N.A.**		**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/06/2023**		**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w).

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**Strength of Materials, Theory of Structures**	**Semester**	**4,5**

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	Students are taught the fundamentals of engineering mechanics, including discuss the concept of the static analysis and understand the two- and three-dimensional force system in addition to analyzing a structure for equilibrium. Moreover, analyze the structures such as trusses, frames and machines.
Module Aims أهداف المادة الدراسية	The main aim of this course is to identify the basic concept of static analysis for different structures like trusses and frames. this may be achieved by understanding the equilibrium concept defining Newton's Law and law of gravitation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Define the principles of engineering mechanics. 2. Describe the basic concept of static analysis 3. Identify Newton's Law and law of gravitation. 4. Define two- & three-dimensional force systems 5. Identify equilibrium in two and three dimensional and describe the free body diagram of system 6. Describe the structures in terms of trusses, frames and machines. 7. Analyze the plane and spaced trusses. 8. Work together in teams to fulfill engineering objectives (analysis, design, and presentation).
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Required Text: Hibbeler, R. C., "Engineering Mechanics", Pearson Prentice Hall, 2013. Optional Text: Higdon, A. and Stiles, W. B. "Engineering Mechanics", 3rd Ed.,

	Prentice-Hall India,1974

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
***Topic I:* Concepts and definitions (Introduction to Static)**			
1-3	12	– (Mechanics, Basic Concepts, Scalar and Vectors), Newton's Law, Units, Law of Gravitation, Problem solving in Static	1, 2, 3, and 8
***Topic II:* - Two- & Three-dimensional force systems**			
4-7	16	- Two-Dimensional Force System (Introduction, Force, Rectangular Components, Moment, Couple, Resultants). - Three-Dimensional Force System (Moment and Couple)	4,5
Topic III: - Equilibrium in Two & Three Dimension			
8-11	16	- Equilibrium in Two Dimension (Introduction, System Isolation the Free-Body Diagram, Equilibrium Conditions) – Equilibrium in Three Dimension (Equilibrium Conditions)	5, 8
***Topic IV:* - Structure**			
12-15	16	– (Introduction, Plane Trusses, Methods of Joints, Method of Sections, Space Trusses, Frames and Machines)	6,7
Final Exam			

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Learning Outcomes and Assessment Methods for "ENGINEERING MECHANICS " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: **Concepts and definitions (Introduction to Static)**	1, 2, 3, and 8	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: **- Two- & Three-dimensional force systems**	4,5	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: - Equilibrium in Two & Three Dimension	5, 8	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: **- Structure**	6,7	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	4	10% (10)	3,5, 10, 12	LO #, 3,4,5 and 8
	Assignments & H.W.	5	10% (10)	4,6,10, 12,13	LO # 1,2,3, 4, 6 and 8
	Seminar/ project	1	10% (10)		
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	LO # 1-4
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	3	45
Lab.					0
Tutorial			15	1	15
Self-Study		Self-Study	15	2	30
Quizzes		Preparation for the Quizzes	4	3	12
discussions during lectures			0	0	0
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	3	3	9
Seminar	Presenting a Seminar		1	0	0
		Preparation for the Project			0
Assignments, Home Work		Preparation for the H.W.	5	3	15
Report		Preparation for the Report	3	2	6
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		0	0	0
Final Exam (50%)		Preparation for the Exam.	1	10	10
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			150
		ECTS			6

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Basic**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2403**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		**1**	**Semester**		**1**
Department		**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Gassan Mohammed Salman**		**E-mail**	**ghassan@ wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title		**Lecture**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	**N.A.**		**e-mail**	**N.A.**	
Peer Reviewer Name		**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date		**01/06/2023**	**Version Number**	**1.0**	

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Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

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	
COURSE DESCRIPTION:	The course is for learning how to draw clear, accurate and detailed drawings. This class will teach the student to understand the fundamental principles of graphic communication. It will also provide you the beginning step to learning the skills for computer-aided drafting and traditional board design. This course leads students to an understanding of engineering drawing, an essential means of communication in engineering. Drawing instruments, conventions and standards of engineering drawing, and orthographic drawing of objects in addition to dimensioning and tolerances.
Module Aims أهداف المادة الدراسية	Engineering Drawing curriculum enables students to: 1. Realize and appreciate the importance of this subject as a medium of communication in technology and engineering fields. 2. Understand the concepts and principles of Engineering Drawing and their applications.

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	3. Understand and interpret technical illustrations. 4. Use Engineering drawing as a medium of communication to convey ideas and information graphically. 5. Draw Engineering Drawing correctly, accurately and neatly. 6. Instill and practice moral values through Engineering Drawing activities. 7. Comply with Engineering Drawing Standard. 8. Acquire a firm foundation to immerse themselves in the engineering field. 9. Be aware of job opportunities in to Engineering Drawing.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Describe various drawing instruments and conventions. 2. Use drawing instruments in making an engineering drawing. 3. Describe different types of lines, drawing paper sizes, and grades of pencils. 4. Do plane geometry construction (parallel, perpendicular, tangent lines and curves, etc) 5. Draw freehand single view, multi-view sketches, and isometric sketches. 6. Apply dimensioning and tolerances in drawing work and know their importance in design. 7. Use imagination while observing different objects. 8. Manage their time and organize their work efficiently.
Indicative Contents المحتويات الإرشادية	الرسم الهندسي – عبد الرسول الخفاف كراسة الرسم الهندسي - عبد الرسول الخفاف الرسم الهندسي والانشاءات الهندسية، محمد الكيلاني، قسم الهندسة الميكانيكية- الجامعة الاردنية Engineering Drawing and Graphic Technology by Thomas E. French, et al McGraw-Hill Higher Education, 14th edition, 1993

COURSE SCHEDULE:-

Week	hour	Topics Covered	Learning Outcomes	Notes
1,2	4	Introduction to Engineering Drawing. Use of drawing instruments. Standard layouts.	1,2	
3,4	2	Engineering process concepts	1,2	
5,6,7	4	Drawing engineering projections.	1,2 and 3	
8,9	6	Isometric method	1,2,3 and 10	
10,11,12	2	Sections	8	

13,14	4	Dimensional method	9,10	
١٥	4	Actual plans for buildings and equipment	All (1to 8)	

Learning Outcomes and Assessment Methods for " Water Resources Engineering " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Introduction to Engineering Drawing. Use of drawing instruments. Standard layouts.	1,2	Theoretical Lectures, drawing based learning	Class work, Homework
Engineering process concepts	3,4	Theoretical Lectures, drawing based learning	Class work, Homework, Quizzes
Drawing engineering projections.	5,6 and 7	Theoretical Lectures, drawing based learning	Class work, Homework
Isometric method	8,9	Theoretical Lectures, Small Group Discussions, drawing based learning	discussions during lectures, Class work, Homework
Sections	10,11,12	Theoretical Lectures, Class work	Class work, Homework
Dimensional method	13,14	Theoretical Lectures, Class work	discussions during lectures. Class work, Homework, Quizzes
Actual plans for buildings and equipment	15	Small Group Discussions, Class work	Quizzes, discussions during lectures, Class work, Homework.

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Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	4, 13	LO # 1,4,5,6 and 11
	Assignments & H.W.	13	20% (20)	1 to 14	LO # All
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	**Structured SWL**	**Un structured SWL**	**No. of weeks**	**Time Factor**	**SWL (hr)**
Class	Class Lecturers				
Lab.			15	3	45
Tutorial					
Self-Study		Self-Study	10	1	10
Quizzes		Preparation for the Quizzes	2	2	4
discussions during lectures			8	1	8
Assignments, Home Work		Preparation for the H.W.	10	2	20
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	5	5
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			100
		ECTS			4

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**INTRODUCTION INTO WATER RESOURCES ENGINEERING**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE3404**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	**1**		**Semester**	**1**	
Department	**Water Resources Engineering**		**College**	**College of Engineering**	
Module Leader	**Thair Hashim Rasheed**		**E-mail**	**Thair.Hashim@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Assistant Lecturer**		**Module Leader's Qualification**	**M.Sc**	
Module Tutor	**N.A.**		**e-mail**	**N.A.**	
Peer Reviewer Name	**N.A.**		**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/06/2023**		**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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Relation with other Modules:-

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	
COURSE DESCRIPTION:	This course provides a comprehensive introduction to water resource engineering, covering various aspects included definition and scope of water resource engineering and its significance in managing water resources. The course emphasizes the role of water resource engineers in society and examines the specific context of water resources in Iraq. Topics covered include the different sources of water resources, encompassing both conventional and unconventional sources.. Furthermore, the course delves into the fundamental concepts of the water cycle and hydrological processes. Surface water hydrology is explored, focusing on river basins, rainfall patterns, and runoff processes. Groundwater hydrology is also discussed, covering aquifers, groundwater flow, and the interactions between groundwater and surface water. The course also addresses water infrastructure, including reservoirs and dams for water storage, canals, channels, and pipelines for water conveyance, irrigation networks, methods and systems, factors influencing the irrigation method selection, and the evaluation of irrigation efficiency. Additionally, the course touches upon drainage networks and the functioning of pumping stations and water supply systems. Lastly, the course examines stormwater management and erosion control techniques. The course covers various practices and strategies for erosion and sediment control to minimize environmental impact, focusing on protecting soil and preventing sedimentation in water bodies.
Module Aims أهداف المادة الدراسية	The goal of this course to equip students with a solid foundation in water resource engineering principles and practices. It aims to develop their understanding of water resources management, hydrological processes, water infrastructure, and techniques for stormwater management and erosion control. They should also be able to apply this knowledge to analyze and address water resource challenges effectively.

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Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the completion of the course, students are expected to be able to:** 1- Demonstrate an understanding of the definition and scope of water resource engineering. 2- Recognize the importance of effective water resources management. 3- Explain the role of water resource engineers in society. 4- Identify and analyze the specific challenges and characteristics of water resources in Iraq. 5- Describe various conventional and unconventional sources of water resources. 6- Explain the components and processes involved in the water cycle. 7- Describe the hydrological processes, including evaporation, condensation, and precipitation. 8- Analyze surface water hydrology, including river basins, rainfall patterns, and runoff processes. 9- Evaluate groundwater hydrology, including aquifers, groundwater flow, and interactions with surface water 10- Identify and describe the components of water infrastructure. 11- Explain the purpose and functioning of reservoirs and dams for water storage. 12- Analyze the design and operation of canals, channels, and pipelines for water conveyance. 13- Evaluate different irrigation methods and systems and their suitability for specific scenarios. 14- Assess the efficiency of irrigation methods and systems. 15- Understand the importance of drainage networks and their role in managing water flow. 16- Explain the functioning and significance of pumping stations and water supply systems 17- Understand the concept of stormwater management and its importance in urban areas. 18- Describe urban drainage systems and their role in managing stormwater. 19- Identify and apply erosion and sediment control techniques. 20- Evaluate practices and strategies for erosion control and the protection of soil. 21- Explain the impact of sedimentation on water quality and methods for prevention.

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Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** Wurbs, R. A., & James, W. P. (2002). Water resources engineering. Prentice Hall Mays, L. W. (2000). Water resources engineering. John Wiley & Sons David, A. D. (2006). Introduction to water resources engineering. Pearson Education India McCuen, R. H. (2005). Hydrologic analysis and design. Prentice Hall. Chin, D. A. (2009). Water resources engineering: Principles and practice. Wiley

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1. *Topic I:* Introduction to Water Resource Engineering			
1-4	4	• Definition and scope of water resource engineering • Importance of water resources management • Role of water resource engineers in society • Water resources in iraq • Sources of water resources	1,2,3,4, and 5

		1- Conventional water resources • Flowing and still surface water • Shallow and buried groundwater 2- Un conventional water resources • Sea water desalination • Artificial rain (Seeding) • Sewage treatment • Return Water	
		2- *Topic II* :- The Water Cycle and Hydrological Processes	
5-7	4	• Components of the water cycle • Processes involved in the water cycle (evaporation, condensation, precipitation, etc.) • Surface water hydrology: River basins, rainfall, and runoff processes • Groundwater hydrology: Aquifers, groundwater flow, and interactions with surface water	6,7,8, and 9
		3- Topic III: - Water Infrastructure	
8-12	4	• Introduction to water infrastructure components • Reservoirs and dams for water storage • Canals, channels, and pipelines for water conveyance • irrigation networks 1- Irrigation methods and systems	10,11,12,13,14,15, and 16

		2- Factors affecting the choice of irrigation methods 3- Evaluation of irrigation methods efficiency • Drainage networks • Pumping stations and water supply systems	
4- ***Topic IV:*** **- Stormwater Management and Erosion Control**			
13-15	4	•Stormwater management and urban drainage systems •Erosion and sediment control techniques	17,18,19,20, and 21
Final Exam			

Learning Outcomes and Assessment Methods for "introduction to Water Resource Engineering" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to Water Resource Engineering	1,2,3,4, and 5	Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Major reports, discussions during lectures. Written Exams,
Topic II: - The Water Cycle and Hydrological Processes	6,7,8, and 9	Problem Based Learning, Report Writing, Field Visits, , Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, , oral exams.
Topic III: - Water Infrastructure	10,11,12,13,14, 15, and 16	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work.
Topic IV: - Stormwater Management and Erosion Control	17,18,19,20, and 21	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Major reports, discussions during lectures. Written Exams.

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Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	8, 13	6,7, and 12
	Assignments & H.W.	4	10% (10)	4,6,10,12	3,5,9,11
	Field Visits Report	1	10% (10)	10	3,7,8
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	1,2,3,4,5,6,7
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	4	60
Lab.					
Tutorial					
Self Study		Self Study	15	2	30
Quizzes		Preparation for the Quizzes	2	2	4
discussions during lectures			0	0	0
Assignments, Home Work		Preparation for the H.W.	4	1	4
Report		Preparation for the Report	1	2	2
Midterm Exam (10%)		Preparation for the Exam.	1	8	8
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	14	14
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			125
		ECTS			5

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Computer Principles and Programming**			**Module Delivery**	
Module Type	**Basic**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE1304**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	**1**	**Semester**	**1**		
Department	**Water Resources Engineering**	**College**	**College of Engineering**		
Module Leader	**Idrees Ali Abdulkhudhur**	**E-mail**	**idrees@environ.uoqasim.edu.iq**		
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**PhD**		
Module Tutor	**N.A.**	**e-mail**	**N.A.**		
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**		
Scientific Committee Approval Date	**01/12/2023**	**Version Number**	**1.0**		

Student Workload (SWL): THREE hour laboratory work per week .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	12	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

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Relation with other Modules:-

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	
COURSE DESCRIPTION:	**This course will introduce the student to the fundamentals of using Microsoft Windows 8 and Microsoft office 2010 as well as the Internet.**
Module Aims أهداف المادة الدراسية	**To give the student basic skills in using Windows and office applications which is considers as basic tools for their work and study.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: **1. An ability to learning principle of computer from component hardware and software .** **2. An ability to apply knowledge of using computer operating system windows 8, MS word, MS power point, MS Excel and Internet.** **3. Give the student the ability use computer application to analyses scientific data.** **4. An ability to knowledge of numerical system of operation system in computer.** **5. Using MS programs (Word, PowerPoint and Excel) to design systems in projects and researches.** **6. An ability to identify, formulates, and solves engineering problems using Excel functions.** **7. An ability to knowledge of using internet ,research in internet in scientific field .**

	8. The ability to communicate professionally using Emails. **9. Understanding the impact of using computers and software applications as engineering solutions, and its effect on the future of science globally.** **10. Learning computer, internet and MS office applications considers as lifelong learning.** **11. Getting skills in using computer software's considers as modern engineering tools and its necessary for engineering practice.**

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
		Topic I: **principle of computer**	
1	3	− Introduction to Computers, − Types of Computers − Computer Operations − Computer Hardware	1,2,9 and 10
2	3	− System Units − Memory Speed, Types of Memory − Computer Software	10 and 11
		Topic II: **- numerical system**	
3	3	− Numbering Systems − Decimal System − Binary system	4,10,and11

		- Octal System - Hexadecimal System	
Topic III: - operation system: windows			
4	3	- Windows 8 The Desktop Task Bar - The start menu	2, 5,9, and 10
5	3	- The Search Box Libraries - Control Panel.	5,9, and 10
***Topic IV:* - Microsoft office: word**			
6	3	- Introduction of the program - (the title bar, menus, standard toolbar, coordination ruler tools, status bar)	2,3,9,10,and 11
7	3	- Dealing with the files already created (search for a file, copy the file, previewing a file before printing, print a file and explain ways to print)	2,3 and 11
8	3	- Dealing with texts (Find the text or word within the document, dealing with fonts Document Format, Paragraphs editing, Numbering the document), and document editing.	2,3,9,10 and 11
***Topic V:* - Microsoft office: power point**			
9	3	- Introduction to power point, (the title bar, menu bar, standard toolbar, formatting toolbar, detailed scheme slides, status bar).	2,3,5,and11
10	3	- Save Presentations, Open a presentation already created, Closing presentation, insert a slide into oresentation, change slide layout,Copy a slides, etc…	2,3,5,10and11
***Topic VI:* - Microsoft office: excel**			

11	3	– Introduction to Excel, (the title bar, menu bar, standard toolbar, ormatting toolbar, bar equation format, the worksheet, the slider, the working paper, the status bar).	2,3,5,6,9,10, and 11
12	3	– Dealing with columns, rows and cells	2.3.6 and 11
13	3	– Equations and functions	2.3.6.9 and 11
Topic VII: - Internet			
14	3	– Basing Concepts , World Wide Web, Identify on the elements of a web page , Using Web Address	2,7. 8,9,10,and 11
15	3	– Email , Create e-mail, Send and receive messages, attach file.	2.3.7.8.10 and 11
Final Exam			

Learning Outcomes and Assessment Methods for "Water Resource Management" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: principle of computer	1,2,9,10, and 11	Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exams.
Topic II: - numerical system	4,10,and11	Theoretical Lectures, Small Group Discussions, Exploratory Work Teams, home work	Major reports, discussions during lectures. Written Exams, , Home work,
Topic III: - operation system: windows	2, 3,5,9, and 10	Computer, Problem Based Learning, Theoretical Lectures, Small Group Discussions.	Quizzes, discussions during lectures, Written Exams, Home work, .
Topic IV: - Microsoft office: word	2,3,5,9,10,and 11	Computer ,office program Theoretical Lectures, Small Group Discussions, application in program, and Report Writing	Major reports, discussions during lectures. Written Exams, oral exams.

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Topic V: - Microsoft office: power point	2,3,5,and11	Computer ,office program Theoretical Lectures, Small Group Discussions, and application in program	quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: - Microsoft office: excel	2,3,5,6,9,10, and 11	Computer ,office program Theoretical Lectures, Small Group Discussions, application in program and Report Writing	quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: - Internet	2,8,9,10,and 11	Computer,internet,Report Writing , application in internet.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	4, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	3, 12	LO # 3, 4, 6, and 8
	Report	1	10% (10)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	9	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

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Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class					
Lab.	Lab		15	4	60
Tutorial					
Self Study		Self Study			
Quizzes		Preparation for the Quizzes	2	1	2
discussions during lectures			2	1	2
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	3	1	3
		Preparation for the Project			
Assignments, Home Work		Preparation for the H.W.			
Report		Preparation for the Report	2	1	2
Midterm Exam (10%)		Preparation for the Exam.	1	3	3
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	3	2
	Evaluation		1	2	2
		Total SWL (hr/ Semester)			75
		ECTS			3

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Module Information **معلومات المادة الدراسية**					
Module Title	**Engineering Physics**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2406**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	**1**	**Semester**	**1**		
Department	**Water Resources Engineering**	**College**	**College of Engineering**		
Module Leader	**Zainab Kelfaa Mansee**	**E-mail**	**z58885058@gmail.com**		
Module Leader's Acad. Title	**Assistant Lecturer**	**Module Leader's Qualification**	**M.Sc**		
Module Tutor	**Zainab Kelfaa Mansee**	**e-mail**	**z58885058@gmail.com**		
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**		
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**		

Student Workload (SWL): Structured SWL (h/w) (four contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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Relation with other Modules:-

Relation with other Modules **العلاقة مع المواد الدراسية الأخرى**			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**Engineering mechanic-Statics**	**Semester**	**2**

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	This course focuses on the Concepts and definitions. Physics, the most fundamental physical science, is concerned with the basic principles of the Universe. It is the foundation upon which the other sciences— astronomy, biology, chemistry, and geology—are based. The beauty of physics lies in the simplicity of the fundamental physical theories and in the manner in which just a small number of fundamental concepts, equations, and assumptions can alter and expand our view of the world around us.
Module Aims أهداف المادة الدراسية	The goal of this course is to develop basic skills and knowledge understanding of natural phenomena, forces, sound, explains the concept of heat, temperature, and methods of transmission and movements affecting their course and formulating knowledge into laws that not only explain the processes mentioned above but also predict the study of natural processes with models that approach reality. Developing the ability to find solutions to geological and environmental problems in a professional and reasonable manner. The ability to links available scientific facts and data in a temporal and spatial range in a scientific manner and find solutions to it.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the completion of the course, students are expected to be understood the following:** 1. Preparing the student for the curricula in subsequent courses. 2. General understanding of physics, its vocabulary, measurement units, and conversion methods 3. Express knowledge and understanding of the pressure and it measurements by different methods. 4. Understand classical mechanics, which is concerned with the motion of objects. In addition to understanding Newton's laws of motion and some practical applications needed by the engineer 5. The students will be understanding and learn about some applications that combine equilibrium with elasticity to construct real structures that last.

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	6. Obtain sufficient information about the properties of the fluid and solid materials and the effect of pressure, temperature, and other factors on its physical properties, 7. Understand thermodynamics, which deals with heat, work, temperature, and the statistical behavior of systems with large numbers of particles. 8. The student learns about the characteristics of sound, its audible and inaudible frequencies, and how to control the noise level in closed and open spaces.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. University Physics with Modern Physics (14th ed.) 2015 (Young and Freedman). 2. Physics for Scientists and Engineers with Modern Physics (14th ed.) (Serway and Jewett). 3. Schaum's Outline of Theory and Problems of Physics for Engineering and Science. 4. Physics for Scientist and Engineers- Strategic Approach with Modern Physics (4th ed.), 2017 (Randall Dewey Knight).

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
		***Topic I:* Physics and Measurement**	
1-2	2(theory) 2(Tutorial) 4(Lap)	– **Units, Physical Quantities and Vectors** – **Standards of Length, Mass, and Time** – **Density and Atomic Mass** – **Dimensional analysis** – **Conversion of units**	1, 2
		***Topic II:* - Pressure**	
3-4	2(theory) 2(Tutorial) 4(Lap)	– **Definition and units** – **Type of pressure** **Fluid pressure, deflagration pressures, Negative pressures, Stagnation pressure, Liquid pressure,** **Pressure of an ideal gas.**	1,3
		Topic III: Force and the laws of motion	
5-6	2(theory) 2(Tutorial)	– ***force and its types*** – ***Newton's laws of motion***	1,4

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	4(Lap)	– ***equilibrium*** – ***work, energy*** – ***energy and power***	
Topic IV: - Static Equilibrium and Elasticity			
7-8	2(theory) 2(Tutorial) 4(Lap)	**– Equilibrium** (Definition - Requirements - Static equilibrium) **– Elasticity** (Tension and compression - Shearing - Hydraulic stress)	1,5
***Topic V:* - Material and fluid properties**			
9-10	2(theory) 2(Tutorial) 4(Lap)	– **Material properties:** (density, elasticity, Hooke's law) – **fluids Properties:** (pressure, viscosity, surface tension)	1,6
Topic VI: Heat transfer			
11-13	3(theory) 3(Tutorial) 6(Lap)	– Definition of heat – quantity of heat – specific heat – thermal expansion – heat transfer (conduction, convection and radiation)	1,7
Topic VII: - Sound			
14-15	2(theory) 2(Tutorial) 4(Lap)	– ***Waves*** – ***speed of sound*** – ***intensity of sound*** – ***reflection and diffraction of sound*** – ***Doppler phenomenon***	1,8
Final Exam			

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Learning Outcomes and Assessment Methods for " General Physic " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
***Topic I:* Physics and Measurement**	1,2	Theoretical and experimental Lectures.	discussions during lectures, oral exam.
***Topic II:* - Pressure**	1,3	Theoretical Lectures, Small Group Discussions.	Quizzes ,discussions during lectures., Homework oral exams.
Topic III: Force and the laws of motion	1,4	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Seminars, discussions during lectures, Written Exams, Homework, oral exams.
Topic IV: - Static Equilibrium and Elasticity	1,5	Theoretical Lectures, Small Group Discussions, experimental work and Scientific Films.	Major reports, discussions during lectures, quizzes Homework, oral exams.
***Topic V:* - Material and fluid properties**	1,6	Theoretical Lectures, Small Group Discussions, experimental work and Scientific Films.	discussions during lectures, Homework, oral exams.
Topic VI: Heat transfer	1,7	Theoretical Lectures, Small Group Discussions, experimental work and Scientific Films.	Seminars, Major reports, Written Exams, Homework, oral exams.
Topic VII: - Sound	1,8	Theoretical Lectures, Small Group Discussions, experimental work and Scientific Films	Discussions during lectures.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	4, 8	
	Assignments & H.W.	5	10% (10)	2, 4,6,8,13	
	Projects / Lab.	10	10% (10)	Continuous	
	Seminar	2	5% (5)	6,13	
	Discussions During Lectures	15	5% (5)	Continuous	
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	1	15
Lab.	Exp. work		15	2	30
Tutorial	Class Lecturers		15	1	15
Self Study		Self Study	15		
Quizzes		Preparation for the Quizzes	2	0	0
discussions during lectures			0	0	0
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	0	0	0
Seminar	Presenting a Seminar		0	0	0
		Preparation for the Project			
Assignments, Home Work		Preparation for the H.W.			
Report		Preparation for the Report	3	0	0
Midterm Exam (10%)		Preparation for the Exam.	1		
	Evaluation		1	2	2
Final Exam (50%)		Preparation for the Exam.	1		
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			100
		ECTS			4

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**اللغة العربية**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE1207**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	**1**	**Semester**	**1**		
Department	**Water Resources Engineering**	**College**	**College of Engineering**		
Module Leader	**Hawraa azeez oleiwi**	**E-mail**	**hawrra.alqaim@wrec.uoqasim.edu.iq**		
Module Leader's Acad. Title	**Assist Professor**	**Module Leader's Qualification**	**Ph.D.**		
Module Tutor	**N.A.**	**e-mail**	**N.A.**		
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**		
Scientific Committee Approval Date	**01/12/2023**	**Version Number**	**1.0**		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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Relation with other Modules: -

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	
COURSE DESCRIPTION:	تهتم هذه المادة بتدريس قواعد اللغة العربية وآدابها ومعاني الالفاظ ومدلولاتها تنمي حسن استعانتهم بمعاجم اللغة والألفاظ تهتم بتحسين الصورة الجمالية للغة العربية
Module Aims أهداف المادة الدراسية	١- أن يتعرف الطالب أهم معاني المصطلح النحوي . ٢- أن يتعرف الطالب دور الكلمة داخل الجملة ويفقه العلاقة داخل مكونات الجملة . ٣- أن يتعرف الطلبة أنواع الجملة في اللغة العربية . ٤- أن يفهم الطلبة ان اللغة العربية هي لغة منتمية الى اللغة الاصل هي لغة القران الكريم
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١-أن يفرق الطلبة بين موضوعات اللغة العربية الامر الذي ينتج كلا متكاملا سواء على صعيد القواعد أو الإملاء أو الادب من أجل تعبير سليم . ٢ – أن يتمرن الطلبة على التحدث باللغة العربية الفصحى وتنمية قابلياتهم الخطابية للإفادة منها في حياتهم العلمية والعملية . ٣- أن يعتاد الطلبة تذوق الخطاب الادبي ليرتقوا بذائقتهم وهم يعدون أو يطلعون على مختلف أنواع الخطاب . ب ٤- أن يتعرف الطلبة طرائق التمييز بين اساليب التعبير ، واختيار الاولى بينها.
Indicative Contents المحتويات الإرشادية	المهارات العامة والتأهيلية المنقولة (المهارات الأخرى المتعلقة بقابلية التوظيف والتطور

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الشخصي). ١- الموهبة . ٢- المتابعة ٣- تحديد العمل (المكتبة والدراسة الميدانية) .	

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
		Topic I	
1	2	***أقسام الفعل***	1,3
		Topic II	
2	2	***نصب الفعل المضارع وجزمه***	2, 3,6
		Topic III	
٣	2	***العدد***	1,2
		Topic IV	
٤	2	• ***الفعل المبني للمجهول***	4,5
		Topic V	
٥	2	***اسم الفاعل***	4,5
		Topic VI	
٦	2	***اسم المفعول***	4,5
٧	2	**تحليل نص شعري / بدر شاكر السياب**	4,5,6

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Topic VIII			
٨	2	**تحليل نص شعري للجواهري**	4, 5
٩	2	**القصة القصيرة**	4, 5
١٠	2	**الفرق بين التاء المبسوطة والتاء المربوطة**	4, 5
١١	2	**المبتدأ والخبر / تقديم الخبر على المبتدأ**	4, 5
١٢	2	**الألف اللينة/ تصويبات لغوية**	4,5,6
١٣	**2**	**الهمزة**	4, 5
١٤	**2**	**تحليل نص شعري لأبي العلاء المعري**	4, 5
١٥	**2**	**النواسخ/ كان وأخواتها/ إنَّ وأخواتها**	4, 5
Final Exam			

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Learning Outcomes and Assessment Methods

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
	1,3	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks , discussions during lectures, Written Exams.
	2,3,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
	1,2	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
	4,5	Theoretical Lectures, Small Group Discussions,	quizzes, discussions during lectures,
	4, 5	Theoretical Lectures, Small Group Discussions,	quizzes, discussions during lectures,
	4,5,6	Theoretical Lectures, Small Group Discussions,	quizzes, discussions during lectures,
	4,5,6	Theoretical Lectures, Small Group Discussions,	quizzes, discussions during lectures,

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	3	30% (30)	3,7, 10	ALL
	Assignments & H.W.	4	5% (5)	2,6,9,12	ALL
	Discussions During Lectures	5	5% (5)	Continuous	ALL
Summative assessment (60%)	**Midterm Exam (10%)**	2hr	10% (10)	12	ALL
	Final Exam (50%)	3hr	50% (50)	16	ALL
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured USWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.					
Tutorial					
Self Study		Self Study			
Quizzes		Preparation for the Quizzes	3	1	3
discussions during lectures			5	1	5
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	0	0	0
Seminar	Presenting a Seminar		0	0	0
		Preparation for the Project			
Assignments, Homework		Preparation for the H.W.	4	1	4
Report		Preparation for the Report	0	0	0
Midterm Exam (10%)		Preparation for the Exam.	1	2	2
	Evaluation		1	1	1
Final Exam (50%)		Preparation for the Exam.	1	2	2
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			50
		ECTS			2

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Mathematics II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2608**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		١	**Semester**		**2**
Department		**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Khalid Fanoukh Abokader**		**E-mail**	**khalidfanoukh@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title		**Assist Professor**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	**Khalid Fanoukh Abokader**		**e-mail**	**khalidfanoukh@wrec.uoqasim.edu.iq**	
Peer Reviewer Name		**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date		**01/06/2023**	**Version Number**	**1.0**	

<u>Student Workload (SWL)</u>: Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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Relation with other Modules: -

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	
COURSE DESCRIPTION:	Mathematics is an essential module in the learning chain of Management engineering. The module is comprising of Coordinates and graphs in the plane, Distance between two points and between point to a line Slopes and equations for lines and circle equation, functions and their graphs, the limits of functions, differentiation, and integration methods.
Module Aims أهداف المادة الدراسية	The content of the module was designed to achieve the aims of providing skills in the application of fundamental Mathematics concepts that underpin all of Engineering. To encourage the development of problem solving as required in other Year 1 modules and in order that more advanced material can be tackled in modules taught in later years. Also, this module is aiming to develop an understanding of the principles of general basic mathematical techniques of relevance to Engineers and develop sufficient mathematical competence to cope with the compulsory content of a Management Engineering degree.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the completion of the course, students are expected to be able to:** 1. Develop knowledge and understanding of mathematical principles to underpin their engineering education and understanding of the principles of general basic mathematical techniques relevant to Management Engineers 2. Recognise and be able to determine the non-uniforms areas and volumes techniques to solve engineering-based problems. 3. Make appropriate assumptions to simplify and thus model real-life Engineering problems. 4. Analyse models using basic mathematical techniques including the derivative of functions and integration techniques. 5. Appreciate physical situations where mathematical techniques such as differentiation and integration are useful and develop knowledge of understanding mathematical models and their limitations.

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	6. have confidence in their mathematical abilities so that when this mathematics arises in the solution of an engineering problem, they can understand (rather than merely accept) the results.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** 1-Thomas Calculus 11th edition. 2-Advanced Engg. Mathematics Erwin Kreyszig. 3-Methods of Applied Mathematics F.B.Hilderbrand.

Week	hours	Topics Covered
1	4	***Limits***
2	4	***The Limit of Trigonometric Functions***
3	4	***Infinity as a Limit***
4	4	***The continuity***
5	4	***Derivative definition***
6	4	***Rules of Derivative***
7	4	***Implicit Differentiation and chain rules***
8	4	***Derivatives of general Exponential function***
9	4	***Derivatives of Trigonometric Functions*** ***Derivatives of Exponential & Logarithmic Functions***
10	4	**Applications on Derivatives**
11	4	***Definite and Indefinite Integrations***
12	4	***Integration of Trigonometric Functions***
13	4	***Integration of Exponential and Logarithmic Functions***

14	8	***Methods of integration***
15	8	***Applications of integration***

Learning Outcomes and Assessment Methods

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Coordinates and Graphs in The Plane, Introduction, Distance between Two Points, Symmetry & Intercepts	1,3	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks , discussions during lectures, Written Exams.
Topic II: - Slopes and Equations for Lines, Point Slope Equation, Slope – Intercept Equation, Distance between Point to a Line, Slopes of Non – Vertical Lines, General Equation for the Line	2,3,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic III: - Functions and Their Graphs, Domain, and Range, Even and Odd Functions	1,2	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic IV: - Limit Combination Theorem, The Limit of Trigonometric Functions Infinity as a Limit	4,5	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic V: - Derivative Rules Implicit Differentiation and Fractional Powers Chain Rule	4, 5	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.
Topic VI: - Derivatives of Trigonometric Functions Derivatives of Exponential & Logarithmic Functions Applications on	4,5,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.

Derivatives			
Topic VII: - Integrations, methods, and applications	4,5,6	Problem Based Learning, Critical thinking questions, Theoretical Lectures, tutorials, Small Group Discussions,	quizzes, HomeWorks, discussions during lectures, Written Exams.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	3	30% (30)	3,7, 10	ALL
	Assignments & H.W.	4	5% (5)	2,6,9,12	ALL
	Discussions During Lectures	5	5% (5)	Continuous	ALL
Summative assessment (60%)	**Midterm Exam (10%)**	2hr	10% (10)	12	ALL
	Final Exam (50%)	3hr	50% (50)	16	ALL
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured USWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	6	90
Lab.					
Tutorial			15	2	30
Self Study		Self Study	15	2	30
Quizzes		Preparation for the Quizzes	3	4	12
discussions during lectures			5	1	5
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	0	0	0
Seminar	Presenting a Seminar		0	0	0
		Preparation for the Project			
Assignments, Homework		Preparation for the H.W.	6	2	12
Report		Preparation for the Report	0	0	0
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		1	1	1
Final Exam (50%)		Preparation for the Exam.	1	12	12
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			150
		ECTS			6

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**ENGINEERING MECHANICS II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2609**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	**1**		**Semester**	**2**	
Department	**Water Resources Engineering**		**College**	**College of Engineering**	
Module Leader	**Mustafa Kareem Hamzah**		**E-mail**	**Mustafa.kareem@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Mustafa Kareem Hamzah**		**e-mail**	**Mustafa.kareem@wrec.uoqasim.edu.iq**	
Peer Reviewer Name	**N.A.**		**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/06/2023**		**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w).

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**Strength of Materials, Theory of Structures**	**Semester**	**4,5**

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	This course will recognize center of gravity, center of mass, and the centroid, develop a method for determining the moment of inertia for an area, introduce the product of inertia and show how to determine the maximum and minimum moments of inertia for an area. introduce the concept of dry friction
Module Aims أهداف المادة الدراسية	The main aim of this course is to introduce the concept of dry friction and show how to analyze the equilibrium of rigid bodies subjected to this force, discuss the concept of the center of gravity, center of mass, and the centroid, develop a method for determining the moment of inertia for an area, introduce the product of inertia and show how to determine the maximum and minimum moments of inertia for an area
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Determine the location of the center of gravity and centroid for a system of discrete particles and a body of arbitrary shape. 2. Determining the moment of inertia for an area, including calculations of the maximum and minimum moments of inertia for an area. 3. Determining the product of inertia for an area. 4. Knowledge about principals' axes and Mohr circle 5. Analyzing the equilibrium of rigid bodies subjected to frictional force. 6. Work together in teams to fulfill engineering objectives (analysis, design, and presentation).
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Required Text: Hibbeler, R. C., "Engineering Mechanics", Pearson Prentice Hall, 2013. Optional Text: Higdon, A. and Stiles, W. B. "Engineering Mechanics", 3rd Ed.,

	Prentice-Hall India,1974

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
		***Topic I:* - Distributed Forces**	
1-4	16	– Distributed Forces (Center of Mass and Centroid, Special Topic)	1,6
		Topic II: - Moment of inertia	
5-11	28	– Moment of inertia, polar moment of inertia, radius of gyration, Moment of inertia of composite areas, Product of inertia of areas, Moment of Inertia for an Area about Inclined Axes, Principal moments of Inertia, Mohr's circle for moments examples	2,3,4 and 6
		Topic III: - Friction	
12-15	16	Friction (Friction Phenomena, Type of Friction, Dry Friction)	5,6
		Final Exam	

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Learning Outcomes and Assessment Methods for "ENGINEERING MECHANICS " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
***Topic I*: - Distributed Forces**	1, 6	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic II: - Moment of inertia	2,3,4 and 6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
***Topic III*: - Friction**	5,6	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	4	10% (10)	3,5, 10, 12	LO #, 1-6
	Assignments & H.W.	5	10% (10)	4,6,10, 12,13	LO # 1-6
	Seminar/ project	1	10% (10)		
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	LO # 1-6
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	3	45
Lab.					0
Tutorial			15	1	15
Self-Study		Self-Study	15	2	30
Quizzes		Preparation for the Quizzes	4	3	12
discussions during lectures			0	0	0
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	3	3	9
Seminar	Presenting a Seminar		1	0	0
		Preparation for the Project			0
Assignments, Home Work		Preparation for the H.W.	5	3	15
Report		Preparation for the Report	3	2	6
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		0	0	0
Final Exam (50%)		Preparation for the Exam.	1	10	10
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			150
		ECTS			6

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**				
Module Title	**Auto CAD**		**Module Delivery**	
Module Type	**Basic**		☐ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2610**			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	**1**	**Semester**	**2**	
Department	**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Gassan Mohammed Salman**	**E-mail**	**Ghassan@ wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Lecture**	**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**N.A.**	**e-mail**	**N.A.**	
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2

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Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

Relation with other Modules **العلاقة مع المواد الدراسية الأخرى**			
Prerequisite module	**Engineering Drawing**	**Semester**	**1**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	The course is for learning how to draw clear, accurate and detailed drawings. This class will teach the student to understand the fundamental principles of graphic communication. It will also provide you the beginning step to learning the skills for computer-aided drafting and traditional board design. This course leads students to an understanding of engineering drawing, an essential means of communication in engineering.
Module Aims أهداف المادة الدراسية	Auto CAD curriculum enables students to: 1. Realize and appreciate the importance of this subject as a medium of communication in technology and engineering fields. 2. Understand the concepts and principles of Auto CAD and their applications. 3. Understand and interpret technical illustrations. 4. Use Auto CAD as a medium of communication to convey ideas and information graphically. 5. Draw Engineering Drawing correctly, accurately and neatly. 6. Instill and practice moral values through Engineering Drawing activities. 7. Comply with Engineering Drawing Standard. 8. Acquire a firm foundation to immerse themselves in the engineering field. 9. Be aware of job opportunities in to Auto CAD.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Describe various drawing instruments and conventions in Auto CAD . 2. Use drawing instruments in making an engineering drawing by Auto CAD. 3. Do plane geometry construction (parallel, perpendicular, tangent lines

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	and curves, etc). 4. Apply dimensioning and tolerances in drawing work and know their importance in design. 5. Use imagination while observing different objects. 6. Manage their time and organize their work efficiently. 7. Become familiar with AutoCAD two dimensional drawings.
Indicative Contents المحتويات الإرشادية	١. كتاب لتعليم الرسم الهندسي ثنائي و ثلاثي البعاد باستخدام امثلة حقيقية عديدة أمجد علي جاسم - د. المهندس امجد علي جاسم ٢٠١١ ٢. كتاب أساسيات اوتوكاد ٢٠١٠ على مهدى مفتن ٣. شرح .Auto CAd 2008 م. محمد براء علوش

COURSE SCHEDULE:-

Week	hour	Topics Covered	Learning Outcomes	Notes
1	4+1	Introduction to CAD systems and AutoCAD	1,2	
2	4+1	Lines, Types of lines. Title block. Drawing simple shapes using different types of lines. How to use drawing instruments. + Understanding the AutoCAD workspace and	3,4,7	
3	4+1	Lettering, Numbering (English and Arabic) + Working with Commands and types of coordinates	3,6,7	
4	4+1	Basics of geometric constructions. Types of conic sections. + Standard Tools: Open, Save, Cut, Paste, ….etc.	4,7	
5,6	8+2	Application of the geometric constructions in drawing basic geometrical shapes. + Contents of Draw and Modify menus	1,2,3 and 7	
7	4+1	Projection, types and specifications + Starting with Draw commands. Polyline and Line command	2,3,5,7	
8	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids and simple models using First angle projection. + Multiline command	2,3,5,7	
9	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids that do not have inclined or circular surfaces. + Rectangle and Polygon command	2,3,4,5,7	
10	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids that have inclined surfaces. + Circle and Arc command	2,3,5,7	

11	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids that have circular surfaces. + Ellipse command. Make and insert Blocks	2,3,4,5,7	
12	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids that have inclined and circular surfaces. + Point command and Hatching	2,3,4,5,7	
13,14	4+1	Principles and method of dimensioning and dimensioning practice + Texting and Method of selecting objects	2,3,6,7	
15	4+1	Orthographic Projections. Drawing orthographic projections of geometric solids that have many details with dimensioning. + Starting with Modify commands.	1,2,3,4,5,7	

Learning Outcomes and Assessment Methods for " Water Resources Engineering " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Introduction to CAD systems and AutoCAD	1,2	Theoretical Lectures, drawing based learning	Class work, Homework

Lines, Types of lines. Title block. Drawing simple shapes using different types of lines. How to use drawing	3,4,7	Theoretical Lectures, drawing based learning	Class work, Homework, Quizzes
Lettering, Numbering (English and Arabic) + Working with Commands and types of coordinates	5,6 and 7	Theoretical Lectures, drawing based learning	Class work, Homework
Basics of geometric constructions. Types of conic sections. + Standard Tools: Open, Save, Cut, Paste, ….etc.	4,7	Theoretical Lectures, Small Group Discussions, drawing based learning	discussions during lectures, Class work, Homework
Application of the geometric constructions in drawing basic geometrical shapes. + Contents of Draw and Modify menus	1,2,3 and 7	Theoretical Lectures, Class work	Class work, Homework
Projection, types and specifications + Starting with Draw commands. Polyline and Line command	2,3,5,7	Theoretical Lectures, Class work	discussions during lectures. Class work, Homework, Quizzes
Orthographic Projections. Drawing orthographic projections of geometric solids and simple models using First angle projection. + Multiline command	2,3,5,7	Small Group Discussions, Class work	Quizzes, discussions during lectures, Class work, Homework.
Orthographic Projections. Drawing orthographic projections of geometric solids that do not have inclined or circular surfaces. + Rectangle and Polygon command	2,3,4,5,7	Small Group Discussions, Class work, drawing based learning	discussions during lectures. Class work, Homework
Orthographic Projections. Drawing orthographic projections of geometric solids that have inclined surfaces. + Circle and Arc command	2,3,5,7	Small Group Discussions, Class work	discussions during lectures. Class work, Homework

Orthographic Projections. Drawing orthographic projections of geometric solids that have circular surfaces. + Ellipse command. Make and insert Blocks	2,3,4,5,7	Small Group Discussions, Class work	discussions during lectures. Class work, Homework
Orthographic Projections. Drawing orthographic projections of geometric solids that have inclined and circular surfaces. + Point command and Hatching	2,3,4,5,7	Small Group Discussions, Class work, drawing based learning	discussions during lectures. Class work, Homework
Principles and method of dimensioning and dimensioning practice + Texting and Method of selecting objects	2,3,6,7	Small Group Discussions, Class work	discussions during lectures. Class work, Homework
Orthographic Projections. Drawing orthographic projections of geometric solids that have many details with dimensioning. + Starting with Modify commands. Erase command	1,2,3,4,5,7	Small Group Discussions, Class work, drawing based learning	discussions during lectures. Class work, Homework

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Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	4, 13	LO # 1,4,5,6 and 7
	Assignments & H.W.	10	20% (20)	1 to 14	LO # All
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	**Structured SWL**	**Un structured SWL**	**No. of weeks**	**Time Factor**	**SWL (hr)**
Class	Class Lecturers		15	1	15
Lab.			15	4	60
Tutorial					
Self-Study		Self-Study	30	1	30
Quizzes		Preparation for the Quizzes	2	2	4
discussions during lectures			10	1	6
Assignments, Home Work		Preparation for the H.W.	10	2	20
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	7	7
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			150
		ECTS			6

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**				
Module Title	**Soil physics**		**Module Delivery**	
Module Type	**Core**		☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE3411**			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	**1**	**Semester**	**2**	
Department	**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Alaa Mahdi Akool**	**E-mail**	**alaamahdi@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.d**	
Module Tutor	**Alaa Mahdi Akool**	**e-mail**	**alaamahdi@wrec.uoqasim.edu.iq**	
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**	

<u>Student Workload (SWL)</u>: Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem)	22	**Unstructured SWL (h/w)**	1.5

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الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

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	
COURSE DESCRIPTION:	This course equips students with the theoretical understanding and modeling skills required to analyze and predict mass and energy transport in the soil-plant-atmosphere continuum. Students will learn to apply analytical and numerical models for diverse transport phenomena including water, heat, solute, and gas transport through soil. Applications in hydrology, agronomy, and environmental science will be emphasized.
Module Aims أهداف المادة الدراسية	In this course, the student will learn: Students should develop and demonstrate the ability to — 1. Understand physical theories used to describe water, mass, and energy flow in the soil-plantatmosphere continuum. 2. Apply existing models to analyze key mass and energy transport processes in real-world situations. 3. Develop new modeling tools or approaches to effectively predict soil physical properties or processes relevant to their area of research. 4- Use mathematical models (where possible) to quantify transfer processes for air, water, and solutes in water saturated and unsaturated soils. 5. Upon completion of the course, students should be able to apply the principles governing the flow and retention of water and solutes in the root zone, solve simple problems involving general water management of soil-water-systems used in agriculture, and agroforestry.
Module Learning Outcomes	At the completion of the course, students are expected to be able to: 1. To identify the soil properties. 2. Classification of soil, according to their properties. 3. The ability of students to identify soil physical properties. 4. Training students on the solving mathematical applications.

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مخرجات التعلم للمادة الدراسية	5. The ability to read and draw contour maps and sections and faults. 6. Familiarity with the problems of engineering students and how to avoid them. 7. An ability to calculate volume of water add to field. 8. An ability to use the modern techniques. 9. An ability to conduct experiments, as well as to analyze data. 10. An ability to function on multi-disciplinary teams. 11. An ability to identify and solve engineering problems. 12. Describing soil physical properties and processes – 13. Installing and applying laboratory and field methods for measuring soil physical and hydraulic properties and processes – 14. Data analysis and interpretation of results for environmental, hydrologic and agronomic applications – 15. Solving complex problems related to transport processes (water, nutrient, heat) in the soil-plant-atmosphere continuum
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Brady, N. C. and R. R. Weil. The Nature and Properties of Soils. 12th ed. PrenticeHall, New Jersey: Prentice-Hall Incorporated, 1999. 2. . Lal, R., Shukla, M. J. 2004. Principles of soil physics. Marcel Dekker, Inc. New York, USA 3. Jury, W.A. and R. Horton. 2004. Soil Physics. Sixth ed. John Wiley & Sons, Inc., Hoboken, New Jersey.

COURSE SCHEDULE:-

Week	hour	Topics Covered	Learning Outcomes	Notes
1,2	4	Importance of soil physics and applications in other fields Physical quantities, units and dimensions Soil phases, definitions, and basic mass and volume relationships	1,2	

3	2	Soil texture and particle size distribution Stock's law	1,2	
4,5	4	Definitions and measurement methods (gravimetric, neutron scattering, gamma attenuation; and time domain reflectometry) Application of soil water content Water balance equation Field capacity, Permanent wilting point, and Plant available soil water	1,2 and 3	
6,7,8	6	Application of soil water content Water balance equation Field capacity, Permanent wilting point, and Plant available soil water The energy state of soil water Total water potential and components Properties of water (molecular, surface tension, and capillary rise)	1,2,3 and 10	
9	2	Units and calculations of potentials under equilibrium Measuring soil water potentials	5,7,8	
10,11	4	Conditions and states of flow	9,10	
12,13	4	Soil water characteristic (retention) curve and measurement Fitting parametric models to soil water retention measurements Hysteresis and scanning curves	4,5,6,10 and 11	
14,15	4	Infiltration process and models (empirical and physically based) Field methods for soil hydraulic property determination	12,13,14 and 15	

Learning Outcomes and Assessment Methods for " Water Resources Engineering " Course.

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Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Importance of soil physics and applications in other fields Physical quantities, units and dimensions Soil phases, definitions, and basic	1,2	Theoretical Lectures	discussions during lectures
Soil texture and particle size distribution Stock's law	1,2	Theoretical Lectures	discussions during lectures. Written Exams
Definitions and measurement methods (gravimetric, neutron	1,2 and 3	Theoretical Lectures	Quizzes, discussions during lectures, Home works
Application of soil water content Water balance equation Field capacity, Permanent wilting point,	1,2 and 3	Theoretical Lectures, Small Group Discussions	discussions during lectures, Home works
Units and calculations of potentials under equilibrium	5,6,7	Theoretical Lectures	discussions during lectures
Conditions and states of flow	9,10	Theoretical Lectures	discussions during lectures. Written Exams
Soil water characteristic (retention) curve and measurement Fitting	4,5,6,10 and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions,	Quizzes, discussions during lectures, Home works
Infiltration process and models (empirical and physically based) Field methods for soil hydraulic property determination	12,13,14 and 15	Problem Based Learning, Theoretical Lectures, Small Group Discussions,	discussions during lectures

Module Evaluation:-

Module Evaluation
تقييم المادة الدراسية

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		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	**Quizzes**	2	10% (10)	5, 10	LO # 4,5,6 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO #1,2, 5, and 7
	Discussions During Lectures	10	10% (10)	Continuous	ALL
	Scientific Trips (Major reports)	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.			15	2	30
Tutorial			15	1	15
Self-Study		Self-Study	5	1	5
Quizzes		Preparation for the Quizzes	2	3	6
discussions during lectures			6	1	6
Scientific Trips (Major reports)			6	1	6
Assignments, Home Work		Preparation for the H.W.	2	1	2
Midterm Exam (10%)		Preparation for the Exam.	1	4	4
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	8	8
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			100
		ECTS			4

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Engineering Statistics**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2412**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	**1**	**Semester**	**2**		
Department	**Water Resources Engineering**	**College**	**College of Engineering**		
Module Leader	**Tholfekar Habeeb Hussain**	**E-mail**	**htholfekar@wrec.uoqasim.edu.iq**		
Module Leader's Acad. Title	**Assistant Prof.**	**Module Leader's Qualification**	**M.Sc**		
Module Tutor	**Tholfekar Habeeb Hussain**	**e-mail**	**htholfekar@wrec.uoqasim.edu.iq**		
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**		
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**		

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Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

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	
COURSE DESCRIPTION:	❖ This course contains the fundamental concepts, methods of statistics and the principles of statistics for engineering applications. The applications of statistics to everyday life, Methods for acquiring data through observation and experimentation. To organize and describe quantitative and categorical forms of data. Anticipating patterns using basic probability and sampling. Statistical inference through estimation and hypothesis testing. Correlation and simple regression. Ways of describing the strength of relationships between variables. Two main statistical methodologies are used in data analysis: descriptive statistics, which summarizes data from a sample using indexes such as the mean or standard deviation, and inferential statistics, which draws conclusions from data that are subject to random variation. Descriptive statistics are most often concerned with two sets of properties of a distribution (sample or population): central tendency (or location) seeks to characterize the distribution's central or typical value, while dispersion (or variability) characterizes the extent to which members of the distribution depart from its center and each other. Inferences on mathematical statistics are made under the framework of probability theory, which deals with the analysis of random phenomena.

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Module Aims أهداف المادة الدراسية	Statisticians help to design data collection plans, analyze data appropriately and interpret and draw conclusions from those analyses. The central objective of the undergraduate major in Statistics is to equip students with consequently requisite quantitative skills that they can employ and build on in flexible ways.Majors are expected to learn concepts and tools for working with data and have experience in analyzing real data that goes beyond the content of a service course in statistical methods for non-majors.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Define the Statistical expressions. 2. Construct Frequency tables and distributions 3. Draw the Frequency distributions (Charts, Histograms, Curves) 4. Evaluate Measures of central tendency, Arithmetic Mean, Median, Mode 5. Select the best method and comparison between the Measures of central tendency, Arithmetic Mean, Median, Mode 6. Define and evaluate the Dispersion measures, Range, Standard deviation, Variance, Mean deviation 7. Determine the Quartiles, Deciles, Percentiles
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Nemaa H. , 1985. “Engineering statistics”. - Ahmed A. ,2008"Principals of statistic"

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
Topic I: **Concepts and definitions**			
1-2	2	− introduction	1
	2	− Statistical expressions	
Topic II: **- Distributions**			

3-5	2	− Frequency tables and distributions	2,3
	4	− Drawing the Frequency distributions (Charts, Histograms, Curves)	
***Topic III:* Measures of central location**			
	2	Measures of central tendency.	
6-9	2	Arithmetic Mean.	4,5
	2	Median.	
	2	Mode	
Topic IV: Measures of variation or Dispersion			
	2	Dispersion measures,	6,7
	2	Range	
	2	Standard deviation	
		Variance	
	2	Mean deviation	
	2	Quartiles, Decimals, Percentiles	
Final Exam			

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Learning Outcomes and Assessment Methods for " Water Resources Engineering " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction	1	Theoretical Lectures	Quizzes, , discussions during lectures
***Topic II:* Distributions**	2,3	Problem Based Learning, Theoretical Lectures, Small Group Discussions,	Quizzes, discussions during lectures. Written Exams
***Topic III:* Measures of central location**	4,5	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	Quizzes, discussions during lectures, Home works
Topic IV: Measures of variation or Dispersion	6,7	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	Quizzes, discussions during lectures, Home works

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 5 and 7
	Assignments & H.W.	3	20% (20)	2, 12	LO #2, 5, and 7
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.					
Tutorial			15	1	15
Self-Study		Self-Study	15	1	15
Quizzes		Preparation for the Quizzes	2	3	6
discussions during lectures			15	1	15
Assignments, Home Work		Preparation for the H.W.	3	1	3
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	8	8
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			100
		ECTS			4

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Engineering Geology**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE2213**				
ECTS Credits	**2**				
SWL (hr/sem)	50				
Module Level		**1**	**Semester**		**2**
Department		**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Idrees Ali Abdulkhudhur**		**E-mail**	**idrees@environ.uoqasim.edu.iq**	
Module Leader's Acad. Title		**Assistant Prof.**	**Module Leader's Qualification**		**M.Sc**
Module Tutor	**Idrees Ali Abdulkhudhur**		**e-mail**	**idrees@environ.uoqasim.edu.iq**	
Peer Reviewer Name		**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date		**01/12/2023**	**Version Number**	**1.0**	

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Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	1.9
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Relation with other Modules:-

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	
COURSE DESCRIPTION:	Study of the Earth's crust components, identify the types of rocks and the factors affecting it, the most important constituent of the rocks and minerals properties Study properties of rocks .
Module Aims أهداف المادة الدراسية	In this course, the student will learn: 1- An introduction, Earth's crust components. 2- Types of minerals. 3- Types of rocks. 4- properties of rocks . 5- Drawing Contour maps and Sections.
Module Learning Outcomes	At the completion of the course, students are expected to be able to: 1. To identify the types of metals depending on the properties. 2. Classification of common rocks, according to their properties. 3. The ability of students to identify some of the properties of the rocks.

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مخرجات التعلم للمادة الدراسية	4. Training students on the solving mathematical applications. 5. The ability to read and draw contour maps and sections and faults. 6. Familiarity with the problems of engineering students and how to avoid them. 7. General information on the components of the Earth's crust and the factors influencing. 8. An ability to use the modern techniques. 9. An ability to conduct experiments, as well as to analyze data. 10. An ability to function on multi-disciplinary teams. 11. An ability to identify and solve engineering problems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. -1- F.G.Bell ,USA,(2007), "Engineering Geology" . 2-F.G.H. Blyth and M.H. de Freitas, (2005), "A Geology for Engineers". 3- Braja. M. Das, (2006): "Principles of geotechnical Engineering", Fifth Edition, Nelson, a division of Thomson Canada Limited. ٤- د.مقداد حسين ود.باسم رشدي و د.سنان هاشم ،(١٩٩١) ، "الجيولوجيا الهندسية".

COURSE SCHEDULE:-

Week	hour	Topics Covered	Learning Outcomes	Notes
1,2	4	Introduction, Soil formation, composition and Description of soil and rock. physical property of minerals.	1,2	
3	2	The most important minerals and their properties, Types of rocks, Igneous rocks, sedimentary rocks.	1,2	
4,5	4	Common Igneous rocks and their properties	1,2 and 3	
6,7,8	6	properties of rocks	1,2,3 and 10	
9	2	Geological origin of the soil, weathering and erosion	8	
10,11	4	Granular composition of the soil, soil classifications.	9,10	

12,13	4	The important of Contour maps , keys, scale	4,5,6,10 and 11	
14,15	4	drawing of map and sections, Faults	4,5 and 11	

Learning Outcomes and Assessment Methods for " Water Resources Engineering " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Introduction, Soil formation, composition and Description of soil and rock. physical property of minerals.	1,2	Theoretical Lectures	discussions during lectures
The most important minerals and their properties, Types of rocks, Igneous rocks,	1,2	Theoretical Lectures	discussions during lectures. Written Exams
Common Igneous rocks and their properties	1,2 and 3	Theoretical Lectures	Quizzes, discussions during lectures, Home works
properties of rocks	1,2,3 and 10	Theoretical Lectures, Small Group Discussions	discussions during lectures, Home works
Geological origin of the soil, weathering and erosion	8	Theoretical Lectures	discussions during lectures
Granular composition of the soil, soil classifications.	9,10	Theoretical Lectures	discussions during lectures. Written Exams
The important of Contour maps , keys, scale	4,5,6,10 and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions,	Quizzes, discussions during lectures, Home works
drawing of map and sections, Faults	4,5 and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions,	discussions during lectures

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Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	10% (10)	5, 10	LO # 4,5,6 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO #1,2, 5, and 7
	Discussions During Lectures	10	10% (10)	Continuous	ALL
	Scientific Trips (Major reports)	10	10% (10)	Continuous	ALL
Summative assessment	**Midterm Exam (10%)**	2 hr	10% (10)	8	
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.					
Tutorial					
Self-Study		Self-Study	10	1	10
Quizzes		Preparation for the Quizzes	2	3	6
discussions during lectures			6	1	6
Scientific Trips (Major reports)			6	1	6
Assignments, Home Work		Preparation for the H.W.	2	1	2
Midterm Exam (10%)		Preparation for the Exam.	1	4	4
	Evaluation		0	0	
Final Exam (50%)		Preparation for the Exam.	1	8	8
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			50
		ECTS			2

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Module Information **معلومات المادة الدراسية**					
Module Title	**English Language**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE121٤**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	**1**	**Semester**	**2**		
Department	**Water Resources Engineering**	**College**	**College of Engineering**		
Module Leader	**Ahmed Samir naje**	**E-mail**	**Ahmed.sameer@wrec.uoqasim.edu.iq**		
Module Leader's Acad. Title	**Assistant Prof.**	**Module Leader's Qualification**	**Ph.D**		
Module Tutor	**N.A.**	**e-mail**	**N.A.**		
Peer Reviewer Name	**N.A.**	**e-mail**	**N.A.**		
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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Relation with other Modules: -

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	
COURSE DESCRIPTION:	Technical English course have been devised to help students at this level to improve their knowledge and use of English in an engineering environment. Each unit covers vocabulary related to a particular topic area such as bridges, tunnels etc, and is designed to reinforce the grammar knowledge of students and improve their communication skills.
Module Aims أهداف المادة الدراسية	In this course, the student will learn: 1- The basic communication skills in English. 2- The speaking skills amongst learners of Engineering. 3- The habit of reading and writing leading to effective and efficient communication. 4- The basic knowledge of using English grammar in academic writing.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**At the completion of the course, students are expected to be able to:** 1. Describe the uses of past tenses. 2. Describe the uses of present tenses. 3. Describe the uses of future tenses. 4. Utilize questions form for different tenses. 5. Utilize passive form for different tenses. 6. Utilize link words in academic writing. 7. Describe the use of stative and dynamic verbs.

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	8. Describe the use of suffixes. 9. Describe the use of prefixes. 10. Describe the use of abbreviations.
Indicative Contents المحتويات الإرشادية	1. Naylor. H, & Murphy. R. (2001), "Essential Grammar in Use Supplementary Exercises", 2nd, The Edinburg Building, Cambridge CB2 2RU, UK, Cambridge University Press.

COURSE SCHEDULE:-

week	Topics Covered	Learning Outcomes	Notes
1	Introduction, Simple Present Tense Uses	2	
2	Perfect Present and Continuous Present Tenses Uses	2	
3	Stative and Dynamic Verbs	7	
4	Simple Past Tense and Continuous Past Tense Uses	1	
5	Perfect Past Tense and Simple Future Tense Uses	1,3	
6	Perfect Future Tense and Continuous Future Tense Uses	3	
7	Formulating Questions for All Tenses	4	
8	Formulating Passive Voice for All Tenses	5	
9	Formulating Passive Voice for All Tenses	5	
10	link Words	6	
11	link Words	6	
12	link Words	6	

13	Suffixes	8	
14	Prefixes	9	
15	Abbreviations	10	

Learning Outcomes and Assessment Methods

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Introduction, Simple Present Tense Uses	2	Theoretical Lectures	quizzes, discussions during lectures
Perfect Present and Continuous Present Tenses Uses	2	Theoretical Lectures	quizzes, discussions during lectures
Stative and Dynamic Verbs	7	Theoretical Lectures	quizzes, discussions during lectures
Simple Past Tense and Continuous Past Tense Uses	1	Theoretical Lectures	quizzes, discussions during lectures
Perfect Past Tense and Simple Future Tense Uses	1,3	Theoretical Lectures	quizzes, discussions during lectures
Perfect Future Tense and Continuous Future Tense Uses	3	Theoretical Lectures	quizzes, discussions during lectures
Formulating Questions for All Tenses	4	Theoretical Lectures	quizzes, discussions during lectures
Formulating Passive Voice for All Tenses	5	Theoretical Lectures	quizzes, discussions during lectures
Formulating Passive Voice for All Tenses	5	Theoretical Lectures	quizzes, discussions during lectures
link Words	6	Theoretical Lectures	quizzes, discussions during lectures

link Words	6	Theoretical Lectures	quizzes, discussions during lectures
link Words	6	Theoretical Lectures	quizzes, discussions during lectures
Suffixes	8	Theoretical Lectures	quizzes, discussions during lectures
Prefixes	9	Theoretical Lectures	quizzes, discussions during lectures
Abbreviations	10	Theoretical Lectures	quizzes, discussions during lectures

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	2	20% (20)	3,7, 10	ALL
	Assignments & H.W.	6	5% (10)	2,6,9,12	ALL
	Discussions During Lectures	5	5% (10)	Continuous	ALL
Summative assessment (60%)	**Midterm Exam (10%)**	2hr	10% (10)	12	ALL
	Final Exam (50%)	3hr	50% (50)	16	ALL
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured USWL	No. of weeks	Time Factor	SWL (hr)

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Class	**Class Lecturers**		15	2	30
Lab.					
Tutorial					
Self Study		**Self Study**	10	1	10
Quizzes		**Preparation for the Quizzes**	2	3	6
discussions during lectures			6	1	6
Projects / Lab.	**Project Work**		6	1	6
		Preparation for the Project	2	1	2
Seminar	**Presenting a Seminar**		1	4	4
		Preparation for the Project	0	0	
Assignments, Homework		**Preparation for the H.W.**	1	8	8
Report		**Preparation for the Report**	1	3	3
Midterm Exam (10%)		**Preparation for the Exam.**			
	Evaluation				
Final Exam (50%)		**Preparation for the Exam.**	10	1	10
	Evaluation		**1**	**3**	**3**
		Total SWL (hr/ Semester)			**50**
		ECTS			**2**

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"COURSE PORTFOLIO"

Module Information **معلومات المادة الدراسية**					
Module Title	**Human Rights and Democracy**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**QWRE1215**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		١	**Semester**		**2**
Department		**Water Resources Engineering**	**College**	**College of Engineering**	
Module Leader	**Hawraa aziz aliwe**		**E-mail**	**Hawrra.alqaim@wrec.uoqasim.edu.iq**	
Module Leader's Acad. Title		**Assist Professor**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	**Hawraa aziz aliwe**		**e-mail**	**Hawrra.alqaim@wrec.uoqasim.edu.iq**	
Peer Reviewer Name		**N.A.**	**e-mail**	**N.A.**	
Scientific Committee Approval Date		**01/06/2023**	**Version Number**	**1.0**	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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Relation with other Modules: -

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	
COURSE DESCRIPTION:	١-تعريف شامل ومركز بحقوق الانسان ابتداءً من جذور نشأتها والتطورات التي شهدتها هذه الحقوق الإنسانية عبر العصور والمجتمعات البشرية واسهام الشرائع السماوية والأديان والحضارات في رفدها بالقيم والمثل . ٢- بيان الاعتراف الدولي بهذه الحقوق من قبل المنظمات، وفي مقدمتها الأمم المتحدة . ٣- دور المنظمات غير الحكومية المعنية بحقوق الإنسان والقانون الدولي الإنساني في الاعتراف بهذه الحقوق واحترامها وحمايتها . ٤- الضمانات العملية لحقوق الإنسان على الصعيد الوطني في الدساتير والتشريعات الوطنية متمثلة بالضمانات الدستورية والقضائية . ٥- دور الأمم المتحدة وأجهزتها ووكالاتها الخاصة بحقوق الإنسان في احترام وحماية حقوق الإنسان وكذلك دور المنظمات الإقليمية في هذا الميدان .
Module Aims أهداف المادة الدراسية	١-التعرف على الحريات العامة ضمن الدستور العراقي . ٢- التعرف على الحماية وإنصاف ضحايا انتهاكات حقوق الإنسان . ٣-الاستخدام الأمثل لتداول السلطة ضمن حق الحريات . ٤- أثر ازدواج القضاء على الحريات العامة .
Module Learning Outcomes	١- أن يتعرف الطالب على حقوق الانسان وواجباته أ٢- ان يتعرف الطالب دور الحرية في حياة الانسان. أ٣- ان يتعرف الطلبة أهم حقوق الانسان المدنية والسياسية والاجتماعية والثقافية .

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مخرجات التعلم للمادة الدراسية	أ٤- ان يفهم الطلبة حقوق الانسان في الدستور والقوانين والانظمة . ١- أن يفرق الطلبة بين الحقوق المدنية والسياسية والحقوق الاجتماعية والثقافية . ٢ – أن يتمرن الطلبة على ممارسة الحريات دون المساس بالآخرين ٣- أن يتعرف الطلبة على الديمقراطية السياسية والديمقراطية الاجتماعية . 1.
Indicative Contents المحتويات الإرشادية	١-أن تتعزز الثقة لدى الطلبة بأنهم مواطنون لهم حقوق وعليهم واجبات . ٢- أن يتمكن الطلبة من ممارسة حرياتهم بديمقراطية . ٣- أن تتحسن علاقة الطالب بأسرته والمجتمع . ٤- أن يتمكن الطالب من حرية الرأي والتعبير والمعتقد . .

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
		Topic I	
1	٢	***مفهوم حقوق الإنسان ومميزاته***	1,3
		Topic II	
2,3	٤	***حقوق الإنسان في العصر الإسلامي/ حقوق الإنسان في العصور الوسطى والحديثة***	2, 3,6
		Topic III	
4	٢	***العهد الدولي الخاص بحقوق الإنسان المدنية والسياسية والاجتماعية والثقافية***	1,2
		Topic IV	
5	٤	ضمانات حقوق الإنسان	4,5
		Topic V	
6,7	٤	حقوق الطفل/ حقوق الوالدين	4,5

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Topic VI			
8,9	٤	***دستور جمهورية العراق لعام ٢٠٠٥/ حقوق ذوي الاحتياجات الخاصة***	4,5
10	٢	**مفهوم الحرية / مفهوم الديمقراطية**	4,5,6
Topic VIII			
11	٢	***أنواع الديمقراطية/ أهم الانتقادات الموجهة للديمقراطية***	4, 5
12	٢	***الديمقراطية بين الخصوصية والعالمية***	4, 5
13	٢	***مفهوم الانتخاب / أنواعه/ الناخب/ المرشح***	4, 5
14	٢	***المرأة ومشاركتها الانتخابية***	4, 5
15	٢	***مفهوم الاقتراع/ أنواعه/ الدوائر الانتخابية***	4,5,6
الامتحان النهائي			

Learning Outcomes and Assessment Methods

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
مفهوم حقوق الإنسان ومميزاته حقوق الإنسان في الحضارات القديمة/ الوسطى/ الحديثة	1,3	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية
Topic II: العهد الدولي الخاص بحقوق الإنسان/ ضمانات حقوق الإنسان	2,3,6	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية
حقوق الطفل / حقوق الوالدين	1,2	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية
Topic IV: - دستور جمهورية العراق لعام ٢٠٠٥ / حقوق ذوي الاحتياجات الخاصة	4,5	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية
Topic V: مفهوم الحرية	4, 5	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية

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/ مفهوم الديمقراطية/ أنواع الديمقراطية			
Topic VI: - أهم الانتقادات الموجهة للديمقراطية/ الديمقراطية بين الخصوصية والعالمية	4,5,6	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية
Topic VII: - مفهوم الانتخاب/ أنواعه / الناخب/ المرشح المرأة ومشاركتها الانتخابية مفهوم الاقتراع وأنواعه/	4,5,6	المحاضرات/ أسئلة التفكير الناقد/ المناقشة	اختبارات قصيرة، مناقشات، اختبارات تحريرية

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment (40%)	**Quizzes**	3	30% (30)	3,7, 10	ALL
	Assignments & H.W.	4	5% (5)	2,6,9,12	ALL
	Discussions	5	5% (5)	Continuous	ALL

	During Lectures				
Summative assessment (60%)	**Midterm Exam (10%)**	2hr	10% (10)	12	ALL
	Final Exam (50%)	3hr	50% (50)	16	ALL
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured USWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	6	90
Lab.					
Tutorial			15	2	30
Self Study		Self Study	15	2	30
Quizzes		Preparation for the Quizzes	3	4	12
discussions during lectures			5	1	5
Projects / Lab.	Project Work		0	0	0
		Preparation for the Project	0	0	0

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Seminar	Presenting a Seminar		0	0	0
		Preparation for the Project			
Assignments, Homework		Preparation for the H.W.	6	2	12
Report		Preparation for the Report	0	0	0
Midterm Exam (10%)		Preparation for the Exam.	1	5	5
	Evaluation		1	1	1
Final Exam (50%)		Preparation for the Exam.	1	12	12
	Evaluation		1	3	3
		Total SWL (hr/ Semester)			225
		ECTS			9