MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 111**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Dams and Water Resources Department		**College**	College of Engineering	
Module Leader	Ahmed Yahya Abdulhafedh		**e-mail**	ahmed.Abdulhafedh@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	Ms.c.	
Module Tutor	Name (if available)		**e-mail**		
Peer Reviewer Name	Dr. Anmar Altalib		**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Matrices and determinants, An Overview of the derivatives, Integration, Indefinite integral, Integration by substitution, The definite integral, Evaluating definite integrals by substitution, Applications of the definite integral, Area between two curves, Volumes by slicing; disks and washers, Volumes by cylindrical shells, Length of a plane curve and Area of a surface of revolution.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Matrices and determinants. 2. An Overview of the derivatives. 3. Integration. 4. Indefinite integral. 5. Integration by substitution. 6. The definite integral. 7. Evaluating definite integrals by substitution. 8. Applications of the definite integral . 9. Area between two curves. 10. Volumes by slicing; disks and washers. 11. Volumes by cylindrical shells . 12. Length of a plane curve. 13. Area of a surface of revolution.
Indicative Contents المحتويات الإرشادية	Matrices and determinants. [6 hr] An Overview of the derivatives. [6 hr] Integration. [6 hr] Indefinite integral. [6 hr] Integration by substitution. [6 hr] The definite integral. [6 hr] Evaluating definite integrals by substitution. [6 hr] Applications of the definite integral. [6 hr] Area between two curves. [6 hr] Volumes by slicing; disks and washers. [6 hr] Volumes by cylindrical shells. [6 hr] Length of a plane curve. [6 hr] Area of a surface of revolution. [6 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	8% (8)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	2% (2)		
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Matrices and determinants.
Week 2	An Overview of the derivatives.
Week 3	Integration.
Week 4	Indefinite integral + (quiz 1)
Week 5	Integration by substitution.
Week 6	The definite integral.
Week 7	Monthly Exam 1
Week 8	Evaluating definite integrals by substitution
Week 9	Applications of the definite integral.
Week 10	Area between two curves + (quiz 2)
Week 11	Volumes by slicing; disks and washers.
Week 12	Volumes by cylindrical shells + (quiz 3)

Week 13	Length of a plane curve.
Week 14	Area of a surface of revolution.
Week 15	Monthly Exam 2
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	-
Week 2	-

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	○ Calculus I By: Thomas	Yes
Recommended Texts	Calculus I By: Thomas 2018	No
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering mechanics I**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 112**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level		UG1	**Semester of Delivery**		Fall
Administering Department		DWRE	**College**	Engineering	
Module Leader	Dr. Laith Khalil Ibrahim Al-Taie		**e-mail**	Laith.altaie@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**		
Peer Reviewer Name		Anmar A.M. Al-Talib	**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date		14/06/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of Engineering mechanics (static) throughout the context of this course. 2. To understand the principles of engineering mechanics I like vector and non-vector quantities, units conversion. 3. This course also deals with force systems and their result. 4. To understand the basics of equilibrium of objects. 5. To understand force distribution in trusses and frames. 6. To perform force analysis using the joint method and the section method.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding vector and non-vector quantities, units conversion. 2. Understanding force system and their resultant. 3. Understanding the equilibrium. 4. Understanding forces in trusses and frames.
Indicative Contents المحتويات الإرشادية	• **Principles of statics [6 hr]** 1-basic concepts 2- vector and non-vector quantities 3- Units and their conversion • **Force systems and their result [24 hr]** 1-Force system 2- Analysis 3- Result of the converging forces 4- Moment force 5- Doubles 6- The result of non-converging forces • **Equilibrium [18 hr]** 1-concept of Equilibrium 2- free body diagram 3- Balance of parallel forces 4 - Equilibrium of bodies on which non-converging forces are applied • **Trusses and Frames [42 hr]** 1-Trusses A- Joints method B – Section method 2-Frames

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and homework assignments.

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

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes (Q)**	4	20% (20)	4, 6, 11, 14	LO #Q1: 1-2, Q2: 5-6, Q3: 7-9, Q4: 10-13
	Assignments (A)	4	20% (20)	3, 5, 10, 13	LO #A1: 1-2, A2: 5-6, A3: 7-9, A4: 10-13
	Projects / Lab.	-	-	-	-
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Principles of statics,** 1-basic concepts, 2- vector and non-vector quantities, 3- Units and their conversion
Week 2	**Force systems and their result.** 1-Force system, 2- Analysis,
Week 3	3- Result of the converging forces, 4- Moment force,
Week 4	5- Doubles, **Problem solving** + Quiz 1
Week 5	6- The result of non-converging forces
Week 6	**Equilibrium.** 1-concept of Equilibrium, 2- free body diagram, 3- Balance of parallel forces **+** Quiz 2
Week 7	4 - Equilibrium of bodies on which non-converging forces are applied
Week 8	**Mid-term Exam** + **introduction about Trusses and Frames**
Week 9	**Trusses and Frames.** 1-Trusses: A- Joints method part 1
Week 10	1-Trusses: A- Joints method part 2 + Quiz 3
Week 11	Trusses: B – Section method part 1
Week 12	Trusses: B – Section method part 2 + **Problem solving**
Week 13	2-Frames part 1
Week 14	2-Frames part 2 + Quiz 4
Week 15	**Problem solving**
Week 16	**Preparatory week before the final Exam – review or open session for general questions**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	الميكانيك الهندسي – الجزء الأول – الاستاتيك. وزارة التعليم العالي والبحث العلمي.	Yes
Recommended Texts	Engineering Mechanics: Statics & Dynamics, 2022, Russell C. Hibbeler	No
Websites	-	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Basic**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 113**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		1
Administering Department		DWRE	**College**	COE	
Module Leader	Dr. Ahmed A. M. Al-Ogaidi		**e-mail**	a.alogaidi@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Mays Ibrahim, Zeyad Taher		**e-mail**	mays.ibrahim.alsaidi@uomosul.edu.iq ziyad.ali@uomosul.edu.iq	
Peer Reviewer Name		Dr. Anmar Altalib	**e-mail**	anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To inform students about the importance of engineering drawing and the essential instruments. 2. To teach students different types of lines. 3. To teach students the basic geometrical constructions. 4. To introduce students to multi view drawing via theory of projection. 5. To teach students 3D drawing based on Isometric concept. 6. To imagine the complicated bodies by drawing sectional view.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In DWRE 112, initially students will learn how to use the engineering instruments to draw many things by different styles. Upon successful completion of this course, the student shall be able to: 1. Use the drawing instruments perfectly. 2. Recognize the types of line and their uses. 3. Draw various geometric shapes depending on geometrical constructions. 4. Understand the theory of projection to draw the views of a certain body. 5. Draw a 3D shape from given views. 6. Draw sectional views to illustrate the hidden features.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <u>Introduction to Engineering Drawing</u> Introduction; types of pencils; engineering instruments; layout of drawing sheet. [3 hrs] <u>Types of lines</u> Visible line; hidden line; cutting line; center line; dimension line; extension line. [3 hrs] <u>Basic geometrical constructions</u> Basic concepts in engineering drawing such as drawing a circle arc of a certain radius tangent to two lines or tangent to two circles, drawing a reverse curve, drawing a perpendicular and bisector line to a certain line, dividing a line into any number of parts, drawing a bisector to a certain angle, drawing ellipse and parabola. [24 hrs] <u>Orthographic projection</u> Explanation of theory of projection and illustration of many problems by drawing their Multi-views. [24 hrs] <u>Isometric Drawing</u> Teaching students the techniques of drawing in 3D format from given projections. [24 hrs] <u>Sectional views</u> Types of sectional views, webs in sections, rotation of axes, lugs in section, spokes in

	section. [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering some challenging problems to motivate students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	16% (16)	4, 9, 12, 15	LO #3 – 6
	Online Assignments	2	4% (4)	5, 8	LO #3, 4
	Onsite Assignments	10	10% (10)	2 – 14	All

	Lab. (Classwork)	10	10% (10)	2 – 14	All
Summative assessment	**Midterm Exam**	2 hr	20% (20)	10	LO #1-4
	Final Exam	3 hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to Engineering Drawing:** Introduction; types of pencils; engineering instruments; layout of drawing sheet. **Types of lines:** Visible line; hidden line; cutting line; center line; dimension line; extension line.
Weeks 2-5	**Basic geometrical constructions:** Basic concepts in engineering drawing such as drawing a circle arc of a certain radius tangent to two lines or tangent to two circles, drawing a reverse curve, drawing a perpendicular and bisector line to a certain line, dividing a line into any number of parts, drawing a bisector to a certain angle, drawing ellipse and parabola.
Weeks 5-9	**Orthographic projection:** Explanation of theory of projection and illustration of many problems by drawing their Multi-views.
Weeks 10-13	**Isometric Drawing:** Teaching students the techniques of drawing in 3D format from given projections.
Weeks 14 & 15	**Sectional views:** Types of sectional views, webs in sections, rotation of axes, lugs in section, spokes in section.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Weeks 2-5	**Labs 1 – 4, Basic geometrical constructions:** Basic concepts in engineering drawing such as drawing a circle arc of a certain radius tangent to two lines or tangent to two circles, drawing a reverse curve, drawing a perpendicular and bisector line to a certain line, dividing a line into any number of parts, drawing a bisector to a certain angle, drawing ellipse and parabola.
Weeks 5-9	**Labs 5 – 8, Orthographic projection:** Explanation of theory of projection and illustration of many

	problems by drawing their Multi-views.
Weeks 10-13	**Labs 9 – 12, Isometric Drawing:** Teaching students the techniques of drawing in 3D format from given projections.
Weeks 14 & 15	**Labs 13– 14, Sectional views:** Types of sectional views, webs in sections, rotation of axes, lugs in section, spokes in section.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• French, T.E., Vierck, C.J. and Hang, R.I., 1978. The Fundamentals of Engineering Drawing and Graphic Technology. McGraw-Hill.	Yes
Recommended Texts	• Morling, K., 2010. Geometric and Engineering Drawing 3E. Routledge. • Hanifan, R., 2014. Perfecting engineering and technical drawing: Reducing errors and misinterpretations (Vol. 139). Springer. • الرسم الهندسي، عبد الرسول الخفاف، الجامعة التكنلوجية، مركز التعريب والنشر، بغداد، 1986.	No
Websites	https://www.coursera.org/search?query=engineering%20drawing	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Democracy and Human Rights			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	DWRE 114				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	1	**Semester of Delivery**	three		
Administering Department	DWRE	**College**	COE		
Module Leader		**e-mail**			
Module Leader's Acad. Title		**Module Leader's Qualification**			
Module Tutor		**e-mail**			
Peer Reviewer Name		**e-mail**			
Scientific Committee Approval Date	01/07/2023	**Version Number**	1.0		

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aim of studying the democracy and human rights topics is to: 1. **Understand** the concept of human rights and explore their sources, including international, regional, national, and religious sources. 2. **Define** administrative corruption, explore its types, and understand its detrimental effects on society. Study methods to combat administrative corruption and promote transparency, accountability, and good governance. 3. **Trace** the historical development and evolution of human rights, examining key milestones and movements that have shaped the modern understanding of human rights. 4. **Differentiate** between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. **Explore** legal, institutional, and societal guarantees to prevent human rights violations, including guarantees of human rights in Islam, national-level protections, and international safeguards. 6. **Comprehend** the concept of democracy, including its principles, values, and various forms of democratic governance such as direct, semi-direct, indirect, and digital democracy. Overall, studying these topics aims to develop a comprehensive understanding of human rights, democracy, and combating corruption, empowering individuals to actively promote and protect human rights and democratic values in society.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After these module aims, students should be able to: 1. Demonstrate a comprehensive understanding of the concept of human rights and their sources, including international, regional, national, and religious sources. 2. Identify and explain the fundamental characteristics of human rights, such as universality, indivisibility, interdependence, and inalienability. 3. Analyze the historical emergence and evolution of human rights, including key milestones and movements that have shaped their development. 4. Differentiate between different categories of human rights, including civil and political rights, economic and social rights, and environmental, cultural, and developmental rights. 5. Evaluate and apply legal, institutional, and societal guarantees to prevent human rights violations, considering guarantees in Islam, at the national level, and within the international framework. 6. Understand and discuss the concept of democracy, including its principles, values, and different forms of democratic governance. 7. Evaluate the Islamic stance on democracy and engage in critical analysis of the strengths and weaknesses of the democratic system. 8. Recognize and assess the impact of administrative corruption on society and propose methods to combat and prevent corruption in administrative systems. 9. Demonstrate critical thinking skills by analyzing and evaluating different perspectives on human rights, democracy, and corruption. 10. Apply acquired knowledge and skills to promote and protect human rights,

	democracy, and good governance in personal, professional, and civic contexts. Overall, students should have a solid understanding of democracy and human rights, democracy, and corruption issues, and be able to apply this knowledge to contribute to the advancement of human rights and democratic values in society.
Indicative Contents المحتويات الإرشادية	The indicative content includes: 1. Definition and sources of democracy and human rights (international, regional, national, religious). [3h] 2. Characteristics of democracy and human rights: universality, indivisibility, interdependence, inalienability. [3h] 3. Emergence and evolution of human rights: historical development, key milestones, influential movements. [3h] 4. Types of human rights: civil and political, economic and social, environmental, cultural, and developmental. [3h] 5. Guarantees to prevent human rights violations: legal, institutional, societal safeguards, Islamic guarantees, national and international levels. [3h] 6. Concept of democracy: principles, values, forms of governance (direct, semi-direct, indirect). [3h] 7. Islamic stance on democracy: compatibility, strengths, weaknesses. [3h] 8. Critique of the democratic system: analysis of strengths and weaknesses. [3h] 9. Administrative corruption: definition, types, societal impact. [3h] 10. Methods to combat administrative corruption. [3h]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching strategies for a human rights module, there are several approaches can be taken to enhance understanding and engagement. Here are some effective strategies: 1. Interactive Discussions: Encourage students to actively participate in discussions, debates, and group activities. This promotes critical thinking, allows for different perspectives to be shared, and fosters a deeper understanding of human rights issues. 2. Case Studies: Present real-life case studies that highlight human rights violations or achievements. Analyzing these cases helps students apply theoretical concepts to practical situations and develops their problem-solving skills. 3. Research Projects: Assign research projects on specific human rights topics or issues. This encourages independent learning, critical analysis, and the development of research skills.

	4. Collaborative Learning: Foster collaboration among students through group projects or assignments. This encourages teamwork, peer learning, and the exchange of diverse perspectives. 5. Assessment Variety: Use a variety of assessment methods, including essays, presentations, debates, and quizzes, to assess students' understanding of human rights concepts and their ability to apply them to real-world situations.

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	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #2, 4, 6 and 8
	Assignments	2	10% (10)	3, 5, 8, 11, 13	LO # 1, 3, 7, 6, 9 and 10
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 2,4,5,7,9and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Definition of human rights and sources of rights (international sources / regional sources / national sources / religious sources).
Week 2	Characteristics of human rights.
Week 3	The emergence and evolution of human rights.
Week 4	Types of human rights / civil and political rights. Economic and social rights. Environmental, cultural, and developmental rights.
Week 5	Guarantees to prevent human rights violations / guarantees of human rights in Islam.
Week 6	Guarantees for the protection of human rights at the national level.
Week 7	Guarantees of human rights at the international level.
Week 8	The concept of democracy.
Week 9	Characteristics of a democratic system.
Week 10	Forms of democratic governance (direct democracy / semi-direct democracy / indirect democracy).
Week 11	Digital democracy / definition and advantages and disadvantages of digital democracy / manifestations of digital democracy.
Week 12	The Islamic stance on democracy.
Week 13	Critique of the democratic system.
Week 14	Administrative corruption / definition and types.
Week 15	Methods to combat administrative corruption.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

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

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	ضمانات حقوق الانسان وحمايتها وفقا للقانون الدولي والتشريع الوطني / نبيل عبد الرحمن ناصر الدين	No
Recommended Texts	الديمقراطية وحقوق الانسان / د. امير عبد العزيز	No
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Hydrogeology**			**Module Delivery**	
Module Type	**Support or related learning activity**			☐ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 117**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Dams and Water Recourses		**College**	Engineering	
Module Leader	Muhanad Talal Yousif		**e-mail**	Mohanad_ALsheer@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Dr. Anmar Altalib		**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date	10/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To understand the types of Rocks and Engineering properties 2. Define hydrogeology and Hydrologic budget 3. Distinguish between Types of aquifers 4. This course deals with the basic concept of Geologic formations as aquifers. 5. Calculate Porosity of rocks or soils in aquifers, groundwater movement, Permeability and Hydraulic Conductivity
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Discrimination between types of Rocks 2. Describe the hydrogeology and Hydrologic budget. 3. Identify aquifers and Distinguish between them. 4. Explanation the basic concept of Geologic formations for aquifers. 5. Define the Porosity of rocks or soils in aquifers and groundwater movement. 6. Apply Darcy equation to Calculate the Hydraulic Conductivity
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Earth's crust and components of the earth's crust, minerals and crystals, Igneous rocks, Metamorphic rocks, sedimentary rocks [12 hrs] Erosion, sculpting and soil formation, geological structures, Engineering properties of rocks, Mechanical properties of rocks [16 hrs] Introduction to hydrogeology, Rock properties affecting groundwater, Types of aquifers, Geologic formations as aquifers [16 hrs] Porosity of rocks or soils in aquifers, groundwater movement, Permeability and Hydraulic Conductivity [12 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and

	expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of exercises involving some problems that are interesting to the students in Soil, Rocks and the water move underground scope.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	15% (15)	2, 6, 12	LO #1, 2, and 4
	Assignments	5	15% (15)	1, 4, 7,11, 14	LO # 3, 4, 5 and 6
	Report	1	10% (10)	13	LO # 3 and 4
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-6
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Earth's crust and components of the earth's crust, minerals and crystals
Week 2	Igneous rocks
Week 3	Metamorphic rocks, sedimentary rocks
Week 4	Erosion, sculpting and soil formation
Week 5	geological structures
Week 6	Engineering properties of rocks
Week 7	Mechanical properties of rocks
Week 8	Introduction to hydrogeology
Week 9	Hydrologic budget
Week 10	Rock properties affecting groundwater
Week 11	Types of aquifers
Week 12	Geologic formations as aquifers
Week 13	Porosity of rocks or soils in aquifers
Week 14	groundwater movement
Week 15	Permeability and Hydraulic Conductivity

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- "Basic Ground-Water Hydrology". RALPH C. HEATH. Prepared in cooperation with the North Carolina Department of Natural Resources and Community Development. Tenth printing, 2004. 2- Ground Water". R. Allan Freeze and John A. Cherry. Printed in the United States of America. 1979 by Prentice-Hall. Inc.,	yes

	Englewood Cliffs, N.J. 3- "Groundwater Hydrology". K.R. Rushton. 2003 John Wiley & Sons Ltd, the Atrium, Southern Gate, Chichester. 4- "The Handbook of Groundwater Engineering". John H. Cushman, Daniel M. Tartakovsky. Published online on: 07 Nov 2016.	
Recommended Texts	1- "STUDY GUIDE FOR A BEGINNIN-G COURSE IN GROUND-WATER HYDROLOGY" PART II. by O. Lehn Franke, Thomas E. Reilly, Ralph J. Haefner, and Dale L. Simmons. U.S. GEOLOGICAL SURVEY. Reston, Virginia 1993.	No
Websites		

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics II**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 121**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Dams and Water Resources Department		**College**	College of Engineering	
Module Leader	Ahmed Yahya Abdulhafedh		**e-mail**	ahmed.Abdulhafedh@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	Ms.c.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Dr. Anmar Altalib		**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Transcendental Functions, Inverse Functions, Derivatives and integral of inverse trigonometric functions, Exponential and logarithmic functions, Derivatives and integrals involving logarithmic and exponential functions, Graphs and applications involving logarithmic and exponential functions, Hyperbolic functions, Hopital's Rule, An overview of integration methods: Trigonometric substitutions, Trigonometric integral, Integration by parts, Integrating rational functions by partial fractions, Numerical integration; Simpson's rule and Improper integrals.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Transcendental Functions. 2. Inverse Functions. 3. Derivatives and integral of inverse trigonometric functions. 4. Exponential and logarithmic functions. 5. Derivatives and integrals involving logarithmic and exponential functions. 6. Graphs and applications involving logarithmic and exponential functions. 7. Hyperbolic functions. 8. Hopital's Rule. 9. An overview of integration methods: 10. Trigonometric substitutions. 11. Trigonometric integral. 12. Integration by parts. 13. Integrating rational functions by partial fractions. 14. Numerical integration; Simpson's rule. 15. Improper integrals.
Indicative Contents المحتويات الإرشادية	Transcendental Functions. [6 hr] Inverse Functions. [6 hr]

	Derivatives and integral of inverse trigonometric functions. [6 hr] Exponential and logarithmic functions. [6 hr] Derivatives and integrals involving logarithmic and exponential functions. [6 hr] Graphs and applications involving logarithmic and exponential functions. [6 hr] Hyperbolic functions. [6 hr] Hopital's Rule. [6 hr] An overview of integration methods: [6 hr] Trigonometric substitutions. [6 hr] Trigonometric integral. [6 hr] Integration by parts. [6 hr] Integrating rational functions by partial fractions. [6 hr] Numerical integration; Simpson's rule. [6 hr] Improper integrals. [6 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6

الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	5% (5)	3,5, 7,9	LO #1, 2, 10 and 11
	Projects	0			
	Lab.	0			
	online Assignments	1	6% (6)	Continuous	All
	onsite Assignments	2	15% (15)	5, 12	LO # 3, 4, 6 and 7
	Reports	1	2% (2)	5	
	seminars	0			
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Transcendental Functions.

Week 2	Inverse Functions.
Week 3	Derivatives and integral of inverse trigonometric functions + (quiz 1)
Week 4	Exponential and logarithmic functions.
Week 5	Derivatives and integrals involving logarithmic and exponential functions.
Week 6	Graphs and applications involving logarithmic and exponential functions+ Hyperbolic functions.
Week 7	Monthly Exam 1
Week 8	Hopital's Rule + (quiz 2)
Week 9	An overview of integration methods:
Week 10	Trigonometric substitutions + Trigonometric integral.
Week 11	Integration by parts + (quiz 1)
Week 12	Integrating rational functions by partial fractions.
Week 13	Monthly Exam 2
Week 14	Numerical integration; Simpson's rule.
Week 15	Improper integrals.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	-
Week 2	-
Week 3	-
Week 4	-

Week 5	-
Week 6	-
Week 7	-

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Calculus I By: Thomas	Yes
Recommended Texts	Calculus I By: Thomas 2018	No
Websites		

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

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

MODULE DESCRIPTION - Computer Drawing

وصف المادة الدراسية - الرسم بواسطة الحاسوب

Module Information معلومات المادة الدراسية					
Module Title	**Computer Drawing**			**Module Delivery**	
Module Type	**Basic**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 123**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		Spring
Administering Department		DWRE	**College**	COE	
Module Leader	Dr. Talal Ahmed Basheer		**e-mail**	t.basheer@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Omar Kannan Taha		**e-mail**	omar.alsultan@uomosul.edu.iq	
Peer Reviewer Name		Dr. Omar Mugdad	**e-mail**	o.agha@uomosul.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module aims to shed light on how to use one of the most important computer aided drawing software - AutoCAD software - reviewing the most important information that the users need to utilize the most common program vision, to produce and extract 2D and 3D drawings. Qualifying students of the Dams and Water Resources Engineering Department to use the AutoCAD software to competently and efficiently realize engineering drawings, and assist them in implementing the details of the designs required in their projects.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Distinguish how to use CAD programs to produce engineering drawings. 2. Benefit from AutoCAD software features to produce efficient drawings. 3. Acquire a knowledge to draw 2D drawings. 4. Acquire skill in modify 2D drawings. 5. Become competent in adding dimensions and text to the drawings. 6. Manage how to work with layers. 7. Accomplish printing the plans in an accurate geometric manner on paper. 8. Learn how to draw 3D drawings.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Introducing AutoCAD interface components, Types of Coordinate systems in AutoCAD, Drawing environment preparation Grid, Snap, Ortho [6 hrs] - Drawing commands: Line, Circle, Polygon, Rectangle, Point, Divide, Hatch, Text, Mtext [18 hrs] - Modify commands: Erase, Copy, Move, Mirror, Rotate, Scale, Offset, Rectangular and Polar Array, Stretch, Trim, Extend, Chamfer, Fillet, Explode [21 hrs] - Object Snap, Zoom, and Pan [6 hrs] - Layers and drawing element settings: Color, Linetype, Line Weight, Text Style [12 hrs] - Dimensions and measurements [6 hrs] - Printing and output [6 hrs] - Basics of 3D Drawings [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (5)	3, 10	LO # 3 and 4
	Assignments	2	10% (5)	5, 12	LO # 1-4
	Lab. Exam	1	10% (10)	14	All
	Report	1	10% (10)	13	LO # 1-6
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction - AutoCAD program interface elements, Coordinate systems in the program, Drafting Settings: Grid, Snap, Ortho
Week 2	Drawing commands: Line, Circle
Week 3	Drawing commands: Polygon, Rectangle
Week 4	Modify tools: Erase, Copy, Move
Week 5	Modify tools: Mirror, Rotate, Scale
Week 6	Object Snap, View – Zoom, View - Pan
Week 7	Modify tools: Offset, Rectangular and Polar Array

Week 8	Modify tools: Stretch, Trim, Extend
Week 9	Drawing Commands: Point, Divide, Hatch
Week 10	Drawing Commands: Text, Mtext
Week 11	Modify tools: Chamfer, Fillet, Explode
Week 12	Layers and drawing element settings: Color, Linetype, Line Weight, Text Style
Week 13	Dimensions and measurements
Week 14	Printing and output
Week 15	Basics of 3D Drawings
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Al-Allaf, Emad Hani, Architectural and Computer Aided Engineering Drawing, 2D Drawing Principles in AutoCAD®, 2018.	Yes
Recommended Texts		
Websites	https://www.mycadsite.com	

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to Water Resources Engineering**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 115**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	**Dam and Water Resources Engineering (DWRE)**		**College**	**College of Engineering**	
Module Leader	Abdulghani Khalaf Mohammed		**e-mail**	Alrobaai1982@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Arwa Abdalrazzaq		**e-mail**	arwa.abdalrazzaq@uomosul.edu.iq	
Peer Reviewer Name	**Dr. Anmar Abdulazeez Al Talib**		**e-mail**	anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date	**15/06/2023**		**Version Number**	**1.0**	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Introducing students to the importance of water resources for human life and what is the primary role of the dams and water resources engineer in managing and developing these resources and ways to preserve them. 2. Introducing students to the basic principles of irrigation and drainage engineering, modern and ancient irrigation methods, and ways to preserve water wealth.

	3. Introducing students to the basic principles of studying fluid flow in pipes and open channels and the most important methods used to measure and control it. 4. Introducing the student to the concept of the hydrological cycle, the movement of water above and below the surface of the earth, and the study of evaporation from the surface of the soil and the surface of free water and the effect of weather factors on it.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The course helps the student to understand the content of the three disciplines of dams and water resources engineering (irrigation, drainage, hydrology, and hydraulics). 2. The course paves the way for students to study the properties of soil and the movement of water in it. 3. The course represents the starting line for the study of hydrology and the water cycle in nature and its distribution above and below the soil surface. 4. After completing this course, the student will be qualified to study the movement of water and other fluids in pipes and open channels and everything related to hydraulics.
Indicative Contents المحتويات الإرشادية	This course is considered one of the important courses for students of the Department of Dams and Water Resources Engineering, where the student is introduced to the most important principles of the branches of water resources (irrigation and drainage, hydraulics, hydrology). In addition to introducing the student to the most important water resources projects and hydraulic facilities in Iraq, where the course includes topics next: 1. hydrological cycle (12hr). 2. Dams and reservoirs/Hydraulic Structures/Floods (12hr). 3. Methods for measuring flow in open channels and pipes(10hr). 4. Soil-water-plant relationship(12hr). 5. Consumptive use (8hr). 6. irrigation methods (10hr). 7. irrigation efficiency (8hr). 8. Water sources in Iraq (8hr). 9. Control and storage projects(8hr) 10. Executed large dams(6hr). 11. Irrigation projects in Iraq(6hr).

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in offering this course is to familiarize the student with the basic principles of the three branches (irrigation and drainage, hydraulics and hydrology) in the field of dams and water resources, to be an introduction that helps the student to delve deeper into the study of these disciplines in the next academic stages. At the same time, improving and expanding critical thinking skills, and introducing him to the importance of water resources in achieving a decent life for humanity. This is achieved through theoretical lectures, scientific reports, field visits, and interactive panel discussions.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
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	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	15% (10)	5, 10,13	LO #1, 2 and 3
	Assignments	3	15% (10)	3, 7,12	LO #1, 2 and 3
	Projects / Lab.	0	0% (10)		
	Report	1	10% (10)	13	LO #1, 2 and 3
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO #1and 2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	introduction to the course, with an explanation of the curriculum vocabulary and scientific sources.

Week 2	Phases of the hydrological cycle/ Irrigation water sources/ Floods.
Week 3	Dams and reservoirs / Types of Water reservoirs.
Week 4	Types of dams /catchment area Classification of dams.
Week 5	Hydraulic Structures/ Methods for measuring flow in open channels and pipes.
Week 6	Volumetric Measurements for discharge Measurement/ Velocity-Area Method for discharge Measurement/ Hydraulic Structures for discharge Measurement
Week 7	Soil physical properties.
Week 8	Soil water forms/ Soil moisture content conventions/ Soil moisture content.
Week 9	irrigation efficiency/Water conduction efficiency/ water and consistency of distribution
Week 10	Surface irrigation/sprinkler irrigation/ drip irrigation.
Week 11	Estimation of water consumption/ Evapotranspiration/ yield coefficient.
Week 12	Water sources in Iraq.
Week 13	Control and storage projects.
Week 14	Executed large dams.
Week 15	Irrigation projects in Iraq**.**
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	

Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Irrigation and drainage book in Iraq and the Arab world. Written by Dr. Najeeb Kharofa, Dr. Mahdi Al-Sahhaf, Dr. Wafiq Al-Khashab	Yes
Recommended Texts	On-farm irrigation systems engineering\by A.Y.Hachum, and H.I.Yasin. textbook- Mosul University,1992.	Yes
Websites		

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Statistics			**Module Delivery**	
Module Type	B			☒**Theory** ☐**Lecture** ☐**Lab** ☒ **Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	DWRE124				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	UGxI		**Semester of Delivery**	2	
Administering Department	DWRE		**College**	ENG	
Module Leader	د. صالح محمد صالح د. مهند طلال		**e-mail**	s.zakaria@uomosul.edu.iq	
Module Leader's Acad. Title	A.Pro. lecturer		**Module Leader's Qualification**	Ph.D. Ph.D.	
Module Tutor	-----		**e-mail**	E-mail	
Peer Reviewer Name	د عمر مقداد عبد الغني		**e-mail**	E-mail	
Scientific Committee Approval Date	24/02/2024		**Version Number**	2.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The aim of this course is to introduce the students to the field of processes and practices of engineering statistics . Engineering statistics combines engineering and statistics using scientific methods to analyze data. This course will discuss some basic principles of engineering statistics, and introduces students to the fundamental concepts of Nature of statistical data and symbols, Viewing the data, Measures of central tendency, Measures of the mean, dispersion, and range.The average deviation, variance, coefficient of variation, binomial distribution, normal distribution, Principles of probability theory and hypothesis testing approach, Which is one of the most important topics in the field of making a decision to accept or reject the statistical hypothesis In addition to deal with the details of some statistical tests which include Chi square test, T-test and F-test, in addition to the Regression and correlation, the drawing method, the least squares method, the linear correlation. At the end of the course, students will have the necessary knowledge to conduct statistical analysis using statistical tests, determine the extent of data correlation, and have the ability to make a decision to accept or reject a statistical hypothesis, , and have the skills of analytical skills (analyze data collected in the field and examine the results) and Communication skills (prepare detailed reports that document their research methods and findings). This will be achieved through descriptive lectures with Preparing engineering statistics reporting and supervised tutorials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. **CLO-1: Recognize Nature of statistical data and symbols and distinguish among them.** **CLO-2: Ability to view Statistical data by tabuling and drawing method.** **CLO-3: Ability to Measure Statistical criteria.** **CLO-4: learn how to analysis of random phenomena.** **CLO-5: learn how to interpretation of probabilities as relative frequencies.** **CLO-6: Derivation of the null and alternative hypotheses based on the statistical data .** **CLO-7: Gaining experience in decision-making to accept or reject null and alternative hypothese** **CLO-8: Recognize different Statistical test and distinguish among them** **CLO-9: Apply the basic Engineering Statistics concepts to solve problems associated with Statistical test(Chi square test, T-test and F-test)** **CLO-10: Organizing the needed solution, drawing and calculation for the Regression and Correlation problems** **CLO-11: Preparing a statistical report, tabulating data and statistics, and providing appropriate solutions for selected topic over the course period**
Indicative Contents	Indicative content includes the following.

المحتويات الإرشادية	**Part A – Introduction, Nature of statistical data, symbols and Measures** This part includes: Introduction, Nature of statistical data and symbols, Viewing the data, the table method, the drawing method. Measures of central tendency, the arithmetic mean, median, and mode Measures of the mean, dispersion, and range. The average deviation, variance, coefficient of variation. (20 hrs) **Part B – Principles of probability theory** This part includes: Principles of probability theory, conditional probability, Binomial distribution, and normal distribution. (16 hrs) **Part C – Hypothesis Testing Approach& Statistical Tests** This part includes: **Hypothesis Testing Approach**, statistical tests which include Z- test, Chi square test, F-test, Regression and correlation, the drawing method, the least squares method , the linear correlation. (24 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course has several components that include lectures, individual & group assignments, and e-learning platforms. Exercises involving the use of statistical vocabulary and componentsto understand the engineering statistical processes. The course will be taught in Arabic , and all mandatory assignments have to be submitted within the deadlines to be admitted to the exams.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Nature of statistical data and symbols,
Week 2	Viewing the data, the table method, the drawing method.
Week 3	Measures of central tendency, the arithmetic mean, median, and mode
Week 4	Measures of the mean, dispersion, and range.
Week 5	The average deviation, variance, coefficient of variation.
Week 6	**Principles of probability theory**
Week 7	Mid-term Exam + conditional probability.

Week 8	Binomial distribution .
Week 9	normal distribution.
Week 10	**Hypothesis testing approach.**
Week 11	Statistical tests , Z- test.
Week 12	Chi square test .
Week 13	F-test .
Week 14	Regression and correlation .
Week 15	the drawing method, the least squares method , the linear correlation.
Week 16	**Preparatory week before the final Exam.**

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

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Introduction to Statistics, Dr. Khasha Mahmoud Al-Rawi, College of Agriculture and Forestry, University of Mosul, 2nd Edition, 2000.	Yes
Recommended Texts	An Introduction to the Science of Statistics: From Theory to Implementation, Preliminary Edition, Joseph C. Watkins	no
Websites	https://www.infobooks.org/free-pdf-books/math/statistics/	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**UOM102**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Computer Eng.	**College**	College of Eng.	
Module Leader	Dr. Mustafa Siham		**e-mail**	Mustafa.qassab@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

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

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

Module Aims أهداف المادة الدراسية	This course develops further knowledge of the grammar and of essential vocabulary in order to lead the students to an advanced level of proficiency. Emphasis is placed on developing listening, speaking, reading and writing skills through an integrated approach. It focuses on grammar and fundamental writing skills. By the end of the course, students are expected to: 1. Understand the main ideas of a variety of written and spoken texts 2. Participate effectively in a short conversation using appropriate language 3. Produce a range of text types in the form of a logical and cohesive paragraph 4. Select appropriate vocabulary to talk about feelings, opinions and experiences. 5. Recognize, understand and use a number of phrasal verbs and collocations. 6. Use effective organizational strategies that include introductions, paragraphs, transitions, and conclusion
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	CLO 1: An ability to acquire and apply new knowledge and using appropriate learning strategies. CLO 2: An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams. CLO 3: Comprehend and analyze various written and spoken texts: Demonstrate the ability to understand the main ideas, key details, and nuances of different types of texts, including articles, essays, speeches, and dialogues. CLO 4: Communicate effectively in spoken interactions: Engage in short conversations using appropriate language and effective communication strategies. Express ideas, opinions, and experiences clearly and coherently. Demonstrate active listening skills and respond appropriately to others. CLO 5: Produce well-structured written texts: Generate logically organized and cohesive paragraphs in written assignments. Apply appropriate grammar, vocabulary, and sentence structures to enhance clarity and coherence. Use effective writing strategies such as introductions, topic sentences, transitions, and conclusions. CLO 6: Employ appropriate vocabulary and expressions: Select and use a wide range of vocabulary to accurately express feelings, opinions, and personal experiences. Recognize, understand, and utilize phrasal verbs and collocations to enhance language fluency and natural expression. CLO 7: Apply effective language organization and coherence: Demonstrate the ability to structure and organize written and spoken communication effectively. Use appropriate discourse markers and transitional words to establish coherence and facilitate smooth flow of ideas.

	These course learning outcomes aim to develop the students' overall English language proficiency and skills in listening, speaking, reading, and writing. By the end of the course, students should be able to understand and analyze various texts, participate actively in conversations, produce well-structured written texts, employ appropriate vocabulary and expressions, and demonstrate effective language organization and coherence.
Indicative Contents المحتويات الإرشادية	Grammar Vocabulary Everyday English

earning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	٣٣	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	٢.٢
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	١٧	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	١.١٣
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	12% (12)	4, 7, 10	LO #1, 3, 5, 6
	Assignments	3	9% (9)	2,4,6	LO #1, 5, 6
	Reports	1	9% (9)	9	LO #4, 5, 7
	Online Assessment	1	10% (10)	10, 11, 12, 13	LO #1, 2, 4, 5, 7
Summative assessment	**Midterm Exam**	2 hr	10% (10)	15	LO # 1-6
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100%		

	(100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	UNIT 1 A world of difference: part 1
Week 2	UNIT 1 A world of difference: part 2
Week 3	UNIT 1 A world of difference: part 3
Week 4	UNIT 2 The working week: part 1.
Week 5	UNIT 2 The working week: part 2.
Week 6	UNIT 2 The working week: part 3.
Week 7	UNIT 3 Good times, bad times: part 1.
Week 8	UNIT 3 Good times, bad times: part 2.
Week 9	UNIT 3 Good times, bad times: part 3.
Week 10	Online assessment Group1.
Week 11	Online assessment Group2.
Week 12	Online assessment Group3.
Week 13	Online assessment Group4.
Week 14	Reviewing the Units 1-3 and open discussion.
Week 15	Midterm exam.
Week 16	Final Exam

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	SOARS, J. & SOARS, L. 2014. New Headway: Intermediate Fourth Edition: Student's Book and iTutor Pack, OUP Oxford.	No
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering mechanics II**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**DWRE 122**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UG1	**Semester of Delivery**		Spring
Administering Department		DWRE	**College**	Engineering	
Module Leader	Dr. Laith Khalil Ibrahim Al-Taie		**e-mail**	Laith.altaie@uomosul.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**		
Peer Reviewer Name		Anmar A.M. Al-Talib	**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date		14/06/2023	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	7. To develop problem solving skills and understanding of Engineering mechanics (dynamic) throughout the context of this course. 8. To understand the principles of engineering mechanics II like friction principals and types 9. This course also deals with Centers and Centers of Gravity of bodies. 10. To understand the basics of moment of Inertia. 11. To understand force distribution in trusses and frames. 12. To perform force analysis using the joint method and the section method.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	5. Understanding vector and non-vector quantities, units conversion. 6. Understanding force system and their resultant. 7. Understanding the equilibrium. 8. Understanding forces in trusses and frames.
Indicative Contents المحتويات الإرشادية	**Friction** 1- The nature of friction 2- mechanical friction 3- Coefficient of Friction 4- Friction issues 5- wedges 6- Frictional forces in the belts **Centers and Centers of Gravity** 1- The importance of centers 2- Centers of spaces and lines 3- Determination of centers by integration 4- Centers of compound shapes **Moment of Inertia** 1- Units of measurement and signals 2- The moment of polar inertia 3- swirl radius 4- The equation for transferring the moment of inertia 5- Moment of Inertia by Integration 6- The factorial of inertia 7- Maximum and minimum values of moment of inertia (Mohr circuit) **Kinematics of Particles** 1- Rectilinear motion 2- Plane curvilinear motion 3- Circular motion **Kinetics of particles** 1- Rectilinear motion 2- Dynamic friction **Work and energy** 1- Equations

	2- Work and energy applications 3- Power 4- Efficiency

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and homework assignments.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes (Q)**	4	20% (20)	4, 6, 10, 14	LO #Q1: 1-3, Q2: 4-6, Q3: 8-10, Q4: 11-13
	Assignments (A)	4	20% (20)	3, 5, 10, 13	LO #A1: 1-2, A2: 5-6, A3: 7-9, A4: 10-13
	Projects / Lab.	-	-	-	-
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Friction:** The nature of friction, mechanical friction, Coefficient of Friction, Friction issues
Week 2	**Friction**: wedges, Frictional forces in the belts
Week 3	**Centers and Centers of Gravity:** The importance of centers, Centers of spaces and lines, Determination of centers by integration, Centers of compound shapes
Week 4	**Problem solving** + Quiz 1
Week 5	**Moment of Inertia:** Units of measurement and signals, The moment of polar inertia, swirl radius, The equation for transferring the moment of inertia,
Week 6	**Moment of Inertia:** Moment of Inertia by Integration, The factorial of inertia, Maximum and minimum values of moment of inertia (Mohr circuit) + Quiz 2
Week 7	**Problem solving**
Week 8	**Mid-term Exam** + **introduction Kinematics of Particles**
Week 9	**Kinematics of Particles:** Rectilinear motion, ,
Week 10	**Kinematics of Particles:** Plane curvilinear motion + Quiz 3
Week 11	Circular motion
Week 12	Dynamic friction + **Problem solving**
Week 13	**Work and energy:** Equations, Work and energy applications,
Week 14	Power, Efficiency + Quiz 4
Week 15	**Problem solving**
Week 16	**Preparatory week before the final Exam – review or open session for general questions**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	الميكانيك الهندسي – الجزء الثاني – الديناميك. وزارة التعليم العالي والبحث العلمي.	Yes
Recommended Texts	Engineering Mechanics: Statics & Dynamics, 2022, Russell C. Hibbeler	No
Websites	-	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title اسم المنهج	اللغة العربية			**Module Delivery**	
Module Type نوع المنهج	اساسي			☒**Theory** ☐**Lecture** ☐**Lab** ☐**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code رمز المنهج	UOM101				
ECTS Credits عدد الوحدات	2				
SWL (hr/sem) الحمل الكلي	50				
Module Level / المستوى	1		**Semester of Delivery /** سحب المنهج	1	
Administering Department القسم الإداري	ENV8		**College** الكلية	ENG4	
Module Leader اسم التدريسي			**e-mail** البريد الالكتروني		
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name	------		**e-mail**	E-mail	
Scientific Committee Approval Date	26/11/2023		**Version Number**	2.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	لا يوجد	**Semester**	
Co-requisites module	لا يوجد	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	الهدف من هذا الفصل الدراسي هو تعريف الطلاب بالموضوعات الرئيسية لمادة اللغة العربية. سيغطي الفصل الدراسي المتطلبات الأساسية لتعاريف اللغة العربية، قواعد نحوية للأزمنة، تنمية القدرات النحوية لصيغ المفرد والجمع والممنوع من الجرد، بالإضافة الى البلاغة والتطبيق. وفي نهاية الفصل، سيكون لدى الطلاب معرفة واسعة بالمفاهيم وسيتم تحقيق ذلك من خلال المحاضرات النظرية والدروس والواجبات البتية والتقارير ذات الصلة بالمواضيع المطروقة.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**CLO1:** تعريف الطالب بألفاظ اللّغة العربيّة الصحيحة وتراكيبها وأساليبها السليمة بطريقة مشوقة وجذابة. **CLO2:** أن يستغل الطالب وقت فراغه بالقراءة والاطلاع والرجوع إلى المكتبة. **CLO3:** تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتّصال مع الآخرين. **CLO4:** تنمية الذوق الأدبي لدى الطالب حتى يدرك النواحي الجمالية في أساليب الكلام ومعانيه وصورة. **CLO5:** تنمية قدرة ومهارة الطالب الإملائية والخطية بحيث يستطيع الكتابة الصحيحة للكتب والمخاطبات الرسمية. **CLO6:** تمكين الطالب على كتابة التقارير العملية والنظرية والعروض التقديمية بلغة عربية واضحة وصحيحة. **CLO7:** القدرة على اكتساب وتطبيق المعرفة الجديدة واستخدام استراتيجيات تعليم مناسبة. **CLO8:** القدرة على المشاركة والعمل بمهنية واخلاقية للعمل في فرق متعددة التخصصات.
Indicative Contents	**الجزء الأول:** مقدمة عن اللغة العربية (4 ساعات)

المحتويات الإرشادية	• مقدمة عن اللغة العربية • تعريف اللغة العربية ومميزاتها **الجزء الثاني:** قواعد نحوية وتشمل: (6 ساعات) • الفعل الماضي • الفعل الماضي • الافعال الخمسة **الجزء الثالث:** تنمية القواعد النحوية وتشمل: (6 ساعات) • المثنى والجمع (المذكر السالم والمؤنث السالم) • التعجب • الممنوع من الصرف • المجرد والمزيد **الجزء الرابع:** البلاغة والتطبيق (8 ساعات) • الاستعارة • الجناس • الطباق • التشبيه **الجزء الخامس:** قواعد املائية: (3 ساعات) سوف يتم تعريف الطالب عن الأخطاء الاملائية الشائعة وطرق تجنبها بالإضافة الى كتابة المخاطبات الادرية. **الجزء السادس:** قواعد العد والمعدود: (3 ساعات) تعريف الطالب بقواعد واحكام العد والمعدود في اللغة العربية.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies الاستراتيجيات	توسيع مدارك الطلاب لمادة اللغة العربية، والإلمام بالمفاهيم الأساسية للغية العربية والبلاغة، والقدرة على التمييز بين الأزمنة. يحتوي هذه الفصل على العديد من المكونات التي تشمل دراسة المحاضرات والبرامج التعليمية والمناقشة والواجبات المنزلية ومنصات التعلم الإلكتروني. سيتم تدريس الدورة باللغة العربية، ويجب تقديم جميع المهام الإلزامية في غضون المواعيد النهائية للقبول في الامتحان.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment التقويم التكويني	**Quizzes** الكويز	3	6% (18)	4, 9, and 13	All
	H.W Assignments الواجبات البيتية	2	4% (8)	5, 11	CLO4, CLO5, and CLO6
	Seminars السمنار	1	6% (6)	12	All
	On-site Assignment واجبات داخل الصف	2	4% (8)	6, 10	CLO4, CLO5, and CLO6
Summative Assessment التقويم التلخيصي	**Midterm Exam** امتحان نصف الفصل	2 hrs	10% (10)	7	All
	Final Exam الامتحان النهائي	3 hrs	50% (50)	16	All
Total Assessment / التقويم النهائي			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered / المواضيع المغطاة
Week 1	مقدمة عن اللغة العربية وتعريف اللغة العربية ومميزاتها
Week 2	قواعد نحوية: الفعل الماضي
Week 3	قواعد نحوية: الفعل المضارع
Week 4	قواعد نحوية: الأفعال الخمسة
Week 5	تنمية القواعد النحوية: المثنى والجمع (المذكر السالم والمؤنث السالم)

Week 6	تنمية القواعد النحوية: التعجب، الممنوع من الصرف والمجرد والمزيد
Week 7	الامتحان الفصلي
Week 8	البلاغة والتطبيق: الاستعارة
Week 9	البلاغة والتطبيق: الجناس
Week 10	البلاغة والتطبيق: الطباق
Week 11	البلاغة والتطبيق: التشبيه
Week 12	الأخطاء الاملائية
Week 13	المخاطبات الإدارية
Week 14	قواعد واحكام العد والمعدود
Week 15	قواعد واحكام العد والمعدود
Week 16	الامتحان النهائي

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered / المواضيع المغطاة
Week 1	لا يوجد
Week 2	لا يوجد
Week 3	لا يوجد
Week 4	لا يوجد
Week 5	لا يوجد
Week 6	لا يوجد
Week 7	لا يوجد

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text الاسم	**Available in the Library?** هل متوفر في المكتبة؟
Required Texts	جامع الدروس العربية / مصطفى الغلاييني	نعم

المنهج المطلوب		
Recommended Texts المنهج الموصى به	النحو الوافي / عباس حسن	نعم
Websites المواقع الالكترونية	https://uomosul.edu.iq/en/engineering/environmental-engineering-dept/	

Grading Scheme

مخطط الدرجات

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM 103**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	**Dam and Water Resources Engineering (DWRE)**		**College**	**College of Engineering**	
Module Leader	Dr. Talal Ahmed Basheer		**e-mail**	t.basheer@uomosul.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Omar Kanaan Taha		**e-mail**	omar.alsultan@uomosul.edu.iq	
Peer Reviewer Name	**Dr. Anmar Abdulazeez Al Talib**		**e-mail**	Anmar.altalib@uomosul.edu.iq	
Scientific Committee Approval Date			**Version Number**	**1.0**	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The Module aim is to prepare student to deal with computers. In addition to, teach the student the fundamentals of computers and its components. Furthermore, learning how

	to use two of Microsoft Office applications (Word and Excel).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	It is expected from the student who passes this module learn the following topics: 1. Computers and Operating System 2. Software and Hardware Interaction 3. Windows File Management 4. Operating System Customization 5. Computer Hardware 6. Monthly LAB Exam 7. Exploring Microsoft Office 2013 8. Getting Started with Word Essentials 9. Editing and Formatting Documents 10. Getting Started with Excel Essentials 11. Organizing and Enhancing Worksheets 12. Creating Formulas and Charting Data
Indicative Contents المحتويات الإرشادية	Computers and Operating System [6 hr] Software and Hardware Interaction [6 hr] Windows File Management [3 hr] Operating System Customization [3 hr] Computer Hardware [6 hr] Exploring Microsoft Office 2013 [3 hr] Getting Started with Word Essentials [3 hr] Editing and Formatting Documents [3 hr] Getting Started with Excel Essentials [3 hr] Organizing and Enhancing Worksheets [3 hr] Creating Formulas and Charting Data [3 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the Lab activities, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, laboratory and by considering type of external search involving some of computer technology that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعياً	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	4, 11	LO #Q1: 1-2, Q2: 7-9
	Assignments	2	5% (5)	3, 10	LO #A1: 1-2, A2: 7-9
	Lab.	10	20% (20)	Continuous	All
	Report	1	5% (5)	14	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	9	LO # 1-5
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Computers and Operating System
Week 2	Computers and Operating System (Continued)
Week 3	Software and Hardware Interaction
Week 4	Software and Hardware Interaction (Continued)

Week 5	Windows File Management
Week 6	Operating System Customization
Week 7	Computer Hardware
Week 8	Computer Hardware (Continued)
Week 9	Monthly Exam
Week 10	Exploring Microsoft Office 2013
Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1, 2	Computers and Operating System
Week 3, 4	Software and Hardware Interaction
Week 5	Windows File Management
Week 6	Operating System Customization
Week 7, 8	Computer Hardware
Week 9	Monthly LAB Exam
Week 10	Exploring Microsoft Office 2013

Week 11	Getting Started with Word Essentials
Week 12	Editing and Formatting Documents
Week 13	Getting Started with Excel Essentials
Week 14	Organizing and Enhancing Worksheets
Week 15	Creating Formulas and Charting Data

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	2015 Computer Literacy BASICS: A Comprehensive Guide to IC3 Connie Morrison, Dolores Wells, Lisa Ruffolo Cengage Learning. ISBN: 128576658X	Available as PDF
Recommended Texts	IC3 GS5 Certification Guide Using Windows 10 & Office 2016	Available as PDF
Websites		

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

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Water quality and pollution**			**Module Delivery**	
Module Type	**Suport or related learning activity**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	DWRE 125				
ECTS Credits	٣				
SWL (hr/sem)	٧٥				
Module Level	1		**Semester of Delivery**	2	
Administering Department	DWRE 125		**College**	Engineering	
Module Leader	Dr. Omar Muqdad Abdulgany		**e-mail**	O.agha@uomosul.edu.iq	
Module Leader's Acad. Title	Asst.Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Alaa A. Naser and Araw abdalrazzaq		**e-mail**	E-mail	
Peer Reviewer Name	Dr. Omar Muqdad Abdulgany		**e-mail**	E-mail	
Scientific Committee Approval Date	09/02/2024		**Version Number**	1.0	

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

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of this topic 1. To gain an understanding of the environment and the different types of environmental pollution. 2. To understand the quantitative and qualitative distribution of water in the world and the hydrological cycle of water from a quantity perspective. 3. To learn about the properties of water sources and how they can become polluted. 4. To understand the impact of engineering projects on water quality and self-purification. 5. To study the effect of decomposition rate (decomposition constant) on the amount of oxygen required in the process of waste decomposition. 6. To analyze the effect of the quality and quantity of wastewater entering and leaving a lake. 7. To study the deficit of oxygen in the water and the processes of reaeration and deoxygenation. 8. To investigate the effect of wastewater on rivers and the different types of pollution that can occur. 9. To understand the impact of detergents on water pollution. 10. To study the different types of pollution that can affect rivers and their ecosystems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of this course, the student will: 1. Be able to describe the chemical compositions of natural waters and understand the reasons behind their variations. 2. Have knowledge of the main sources of water pollution and the different types of pollutants. 3. Be able to calculate the changes in dissolved oxygen, oxygen deficit, and Biological

	Oxygen Demand (BoD) along the riverbed due to wastewater. 4. Be able to compute the impact of the quality and quantity of wastewater entering and leaving a lake. 5. Be able to identify the different types of pollution that can affect rivers. 6. Understand the properties of water sources and how they can become polluted. 7. Be able to identify the criteria for drinking water acceptability and describe the processes used to treat water for public water supply.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to Environment [4 hrs] Hydrological Cycle of water from quantity sides. [4 hrs] Properties of water sources, how water sources polluted. Effect of engineering project on water quality and self-purification. [8 hrs] Effect of decomposition rate (decomposition constant) on the amount of oxygen required in the process of waste decomposition. [12 hrs] Calculate the change of dissolved oxygen, deficit oxygen and BoD along the riverbed due to wastewater. [12 hrs] Effect of the quality and quantity of wastewater entering and leaving the lake. [6 hrs] Seasonal inversion in lakes, Effect of detergents on the pollution of the water. [6hrs] Study the type of pollution on the river, Wastewater treatment.[8hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	To ensure effective learning of water quality and pollution, the teaching strategies employed should be engaging and equip students with the relevant knowledge and skills. This can be achieved through problem-solving exercises, case studies, and fieldwork. Collaborative learning in groups promotes teamwork, communication, and critical thinking skills. Regular feedback and reflection help students identify areas for improvement and consolidate their learning. Case studies are also useful in illustrating the impact of water pollution on different environments and ecosystems

	and emphasize the importance of protecting water resources. By utilizing these strategies, students can gain a deeper understanding of water quality and pollution, and develop the skills necessary to become effective professionals in this field.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

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	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 8,9 and 10
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	15% (15)	Continuous	All
	Report	5	5% (5)	3,4,5,6,7,9	LO # 2, 3,4, 6,10 and 10

Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-8
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Environment
Week 2	Hydrological Cycle of water from quantity sides. Quiz No.1
Week 3	Properties of water sources, how water sources polluted.
Week 4	Effect of engineering project on water quality and self-purification.
Week 5	Effect of decomposition rate (decomposition constant) on the amount of oxygen required in the process of waste decomposition
Week 6	Effect of decomposition rate (decomposition constant) on the amount of oxygen required in the process of waste decomposition
Week 7	Calculate the change of dissolved oxygen along the riverbed due to wastewater.
Week 8	Mid-term Exam
Week 9	Calculate the change of deficit oxygen along the riverbed due to wastewater.
Week 10	Calculate the change of BoD along the riverbed due to wastewater, Quiz No.2
Week 11	Effect of the quality and quantity of wastewater entering and leaving the lake.
Week 12	Effect of the quality and quantity of wastewater entering and leaving the lake.
Week 13	Seasonal inversion in lakes, Effect of detergents on the pollution of the water
Week 14	Study the type of pollution on the river.
Week 15	Wastewater treatment.

Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Solids, Dissolved and Suspended solids, and total solids
Week 2	Lab 2: Turbidity
Week 3	Lab 3: PH-value& Electrical Conductivity.
Week 4	Lab 4: Hardness
Week 5	Lab 5: Dissolved Oxygen

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	○ د. طارق احمد محمود " علم و تكنولوجيا البيئة " كتاب منهجي لمادة هندسة البيئة – جامعة الموصل –كلية الهندسة.	Yes
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

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