MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Safety and chemical security**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**Cos-1104**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Noor Sabah Ahmed		**e-mail**	noorsabah@uodiyala.edu.iq	
Module Leader's Acad. Title	Assistant Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To teach students the fundamental principles of chemical safety and promote awareness of potential hazards in laboratory environments. 2. To provide students with essential knowledge of proper laboratory design and specifications, ensuring a safe and efficient working environment. 3. To develop students' understanding of the correct application of safety and security protocols in chemical laboratories. 4. To train students on the proper handling and usage of chemicals and laboratory glassware, fostering good laboratory practices. 5. To encourage critical thinking by assigning external questions as homework, giving students the opportunity to analyze, explore, and find solutions independently. 6. To motivate students to conduct reports and research related to their coursework, promoting the use of modern research tools and technologies—such as the internet—to enhance their scientific and research skills. 7. To prepare graduates specialized in chemistry who are equipped to contribute effectively to the country's scientific and industrial development. 8. To meet the demands of various sectors by providing highly qualified professionals** in the field of chemistry.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the subject, students will be able to: (a) apply the basic and common techniques used in biological and chemical laboratories; (b) comply with the general laboratory safety, the biological safety and the chemical safety regulations; (c) use laboratory equipment, apparatus, and preparation of reagents and solutions correctly; (d) perform accurate observations in laboratory practices; (e) write the laboratory report in a properly written form with data
Indicative Contents المحتويات الإرشادية	Laboratory Safety General laboratory safety practices; Hazards and risk assessment; General principles of biosafety; Basic laboratories – Biosafety Levels 1 and 2; Equipment designed to reduce biological hazards;

	Safe laboratory techniques; disinfection and sterilisation; Hazards associated with chemicals and chemical waste; General knowledge on the handling, storage and disposal of chemicals and chemical wastes; Personal protection and protective clothing for handling of potentially hazardous chemicals, chemical wastes and spillages; Laws pertaining to the handling and storage of chemicals: dangerous goods, controlled chemicals, dangerous substances used in industry, disposal of chemical waste and others.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Power point lecture method using data show and whiteboard. Explanation and clarification. Providing students with the basics and additional topics related to the outputs of inorganic chemical thinking and analysis. Forming discussion groups during lectures to discuss inorganic chemistry topics that require thinking and analysis. Asking students a set of thinking questions during the lectures such as what, how, when and why for specific topics. Giving students homework that requires self-explanations in causal ways.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
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 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	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 of Chemical Safety and Security,general Chemistry Safety and Laboratory Rules
Week 2	Common Laboratory Glassware and Equipment
Week 3	General information to laboratory staff ,Chemical storage and how to store chemical.
Week 4	Acids Bases and Salts
Week 5	Lab Safety Symbols and Hazard Signs
Week 6	Principles of Green Chemistry
Week 7	LABORATORY CHEMICAL WASTE MANAGEMENT
Week 8	**Midterm Exam**
Week 9	Lab building requirements
Week 10	Rules and precaution need to deal safely with chemicals.

Week 11	Personal protection equipment, chemicals handing and transfer to the department in the safe way
Week 12	Lab accidents and how to deal with, avoiding and protection from fires,
Week 13	chemical waste storage, burning and disposal
Week 14	Selling and purchasing of chemicals, receiving, recording chemical data, delivery to storage,
Week 15	safe storage of solvents, flammable and explosive chemicals
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	Estridge, B.H. & Reynolds, A.P. (2012). Basic Clinical Laboratory Techniques. (6th ed.), Thomson Delmar Learning Publishers.	
Recommended Texts	Bisen P.S. (2014). Laboratory Protocols in Applied Life Sciences. CRC Press.	

	Brown J.K. Biotechnology (2011). A Laboratory Skills Course. (1st ed.), Hercules BioRad Laboratories. Fleming & Hunt (Editors) (2017). Biological Safety Principles and Practices. (5th ed.), ASM Press.	
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**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**Che-1106**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Suhad Kareem Hamid		**e-mail**	suhadkareem@uodiyala.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MSc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Teaching the student functions and the concept of continuity for functions and inequalities, as well as derivation, methods of integration and operations on them, and how to use them in various scientific subjects and harness them to solve mathematical problems that they face in various scientific subjects. Teaching and educating students on all the necessary and necessary information related to mathematics, which qualifies them to model scientific concepts into mathematical equations..
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A- Cognitive goals A1- Enabling students to obtain knowledge and understanding of modern mathematics A2- Enable students to obtain knowledge and understanding of the structure of functions and equations, test their properties, and perform integrations and differentials on them. A3- Enabling students to obtain knowledge and understanding of mathematical integrations and differentials of functions. A4- Enabling students to obtain knowledge and understanding of numerical analysis methods and types of equations B - The soft skills objectives of the course B1 - the skill of knowing - remembering B2 - Memory and analysis skills B3 - Use and modeling skills
Indicative Contents المحتويات الإرشادية	Subtraction-minus, greater than, take away, fewer than, less than, subtract, decreased by. Multiplication-product, multiply, multiplied by, times. Division-quotient, dividend, divide, divided by, each, per, average, divided equally. Equal-the same, equals, the same as, equivalent, is equal to.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Power point lecture method using data show and whiteboard.

	Explanation and clarification. Providing students with the basics and additional topics related to the outputs of inorganic chemical thinking and analysis. Forming discussion groups during lectures to discuss inorganic chemistry topics that require thinking and analysis. Asking students a set of thinking questions during the lectures such as what, how, when and why for specific topics. Giving students homework that requires self-explanations in causal ways.

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
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	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	Limits and continuity ,Estimating limits from graphs, Estimating limits from tables Formal definition of limits (epsilon-delta),Properties of limits,Limits by direct substitution, Limits using algebraic manipulation, Strategy in finding limit
Week 2	Continuity at a point, Continuity over an interval, Removing discontinuities, Infinite limits , Limits at infinity, Intermediate value theorem
Week 3	Derivatives: definition and basic rules, Estimating derivatives, definition and basic rules Differentiability, definition and basic rules, Power rule, chain rule and other More chain rule practice,chain rule and other advanced topic
Week 4	Implicit differentiation, Implicit differentiation (advanced examples), Differentiating inverse functions, Derivatives of inverse trigonometric function
Week 5	Second derivatives, Disguised derivatives, Logarithmic differentiation, exponentials differentiation
Week 6	Applications of derivatives,Approximation with local linearity, Applications of derivatives L'Hôpital's rule, L'Hôpital's rule, composite exponential functions
Week 7	Integrals ,Indefinite integrals of common functions, Integrals .Definite integrals of common Integrating with u-substitution,
Week 8	**Midterm Exam**
Week 9	Integrating using long division and completing the squares Integrating using trigonometric identities

Week 10	Integration of rational function, Integration by parts, Integration by fraction partition
Week 11	Sequences, Series and the integral test, Comparison tests
Week 12	Alternating Series, absolute convergence, ratio and root tests
Week 13	Strategy for testing series, Power series, representations of functions as power series
Week 14	Taylor and Maclaurin series
Week 15	Applications of Taylor polynomials
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	*Foundations of the Calculus*, DeBaggis, Henry F.; Miller, Kenneth S. (1966) Differential and Integral Calculus, Philip Franklin ·	Yes
Recommended	Limits and Continuity, Teddy C. J. Leavitt	No

Texts		
Websites	https://www.cuemath.com/calculus/	

Grading Scheme مخطط الدرجات				
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