	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser and Optoelectronics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	CHEMISTRY			**Module Delivery**	
Module Type	SUPLEMENT			**Theoretical Lectures**	
Module Code	LOEC114				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Laser & Optoelectronics		**College**	LOE	
Module Leader	Wasan A.Hekmat		**e-mail**	Wasan.A.Hekmat@uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**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	Analytical chemistry is important for chemical engineers because it helps them to identify the composition of a substance. Analytical chemistry, as the component of chemistry most closely related to engineering, most involved in the development of new instrumentation and new technology, and most concerned with the practical applications of chemistry, has seen increased interest with the emergence of the mega-interdisciplinary areas of nanotechnology and systems biology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students able to know the meaning of the modern Analytics chemistry 2. Summarize the tools of analytics methods 3. Explain the sample preparation. 4. How the sample collection. 5. Identify the Chemical Equilibrium 6. Explain the electrochemical methods 7. Discuss the operation of the Molecular Absorption Spectrometry, Molecular Fluorescence Spectroscopy, Atomic Spectroscopy
Indicative Contents المحتويات الإرشادية	**<u>Unit one:</u> <u>Introduction to Analytical Chemistry</u>** 1. The Nature of Analytical Chemistry 1.2 The Role of Analytical Chemistry 1.3 Quantitative Analytical Methods 1.4Typical Quantitative Analysis **<u>Unit Two:</u> <u>Tools of Analytical Chemistry</u>** 2.1 Numbers in Analytical Chemistry 2.2 Fundamental Units of Measure 2.3 Units for Expressing Concentration 2.3.1 Molarity and Formality 2.3.2 Normality 2.3.3 Molality 2.3.4 Weight, Volume, and Weight-to-Volume 2.3.5Ratios **Unit Three: Stoichiometric Calculations** 3.1Conservation of Mass

	3.2 Conservation of Charge 3.3 Conservation of Protons 3.4 Conservation of Electron Pairs 3.5 Conservation of Electrons **Unit Four: Chemical Equilibrium** 4.1 Basic Analytical Properties 4.2 Precision 4.3 Sensitivity 4.4 Selectivity **Unit Five: Chemical Equilibrium** 5.1 Aqueous Solutions and Chemical Equilibrium 5.2 Effect of Electrolytes on Chemical Equilibrium **Unit Six: Obtaining and Preparing Samples for Analysis** 6.1 Designing A Sampling Plan 6.2 Sample Collection **Unit Seven: Gravimetric Methods of Analysis** 7.1Overview of Gravimetric 7.2 Types of Gravimetric Methods 7.3 Why Gravimetric Is Important **Unit Eight: Titrations in Analytical Chemistry** 8.1 Some Terms Used in Volumetric Titrations 8.2 Standard Solutions 8.3 Volumetric Calculations **Unit Nine: The Measurement Process in Chemistry** 9.1 Definition of Chemical Measurement Process 9.2 General Steps of a Chemical Measurement Process **Unit Ten: Effect of Electrolytes on Chemical Equilibrium** 10.1 The Effect of Electrolytes on Chemical Equilibrium 10.2 Activity Coefficients **Unit Eleven: Electrochemical Methods** 11.1 Electrochemical Methods definition 11.2 Introduction to Electrochemistry 11.3 Characterizing Oxidation/Reduction Reactions **Unit Twelve: Spectrochemical Analysis** 12.1 Introduction to Spectrochemical Methods 12.2 Properties of Electromagnetic Radiation 12.3 Interaction of Radiation and Matter **Unit Thirteen: Molecular Absorption Spectrometry** 13.1 Ultraviolet and Visible Molecular Absorption Spectroscopy **Unit Fourteen: Molecular Fluorescence Spectroscopy, Atomic Spectroscopy**

	14.1 Theory of Molecular Fluorescence 14.2 Atomic Emission Spectrometry 14.3 Atomic Absorption Spectrometry
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The important strategy is to teach the student how to deal with materials, how to prepare and store them, as well as how to preserve samples in a suitable environment. Encourage the students to participate in the daily activities and discussions.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
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**	4	20% (20)	2, 5, 7, 9	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	4	LO # 3
	Projects	1	5% (5)	3	LO#2
	Report	1	5% (5)	13	LO # 5
Summative assessment	**Midterm Exam**	1 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	Unit one: Introduction to Analytical Chemistry
Week 2	Unit Two: Tools of Analytical Chemistry
Week 3	Unit Three: Stoichiometric Calculations
Week 4	Unit Four: Chemical Equilibrium
Week 5	Unit Five: Chemical Equilibrium
Week 6	Unit Six: Obtaining and Preparing Samples for Analysis
Week 7	**Mid-term exam**
Week 8	Unit Seven: Gravimetric Methods of Analysis
Week 9	Unit Eight: Titrations in Analytical Chemistry
Week 10	Unit Nine: The Measurement Process in Chemistry
Week 11	Unit Ten: Effect of Electrolytes on Chemical Equilibrium
Week 12	Unit Eleven: Electrochemical Methods
Week 13	Unit Twelve: Spectrochemical Analysis
Week 14	Unit Thirteen: Molecular Absorption Spectrometry
Week 15	Unit Fourteen: Molecular Fluorescence Spectroscopy, Atomic Spectroscopy
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		Yes
Recommended Texts	1- Modern Analytical Chemistry: David Harvey, McGraw-Hill Companies, 2000. 2- Fundamentals of Analytical Chemistry: F. James Holler, Stanley R. Crouch,2021	Yes
	3- Principles of analytical chemistry : a textbook, Miguel Valcarcel	Yes

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser and Optoelectronics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	ENGLISH LANGUAGE	**Module Delivery**	
Module Type	BASIC	**Theory: Lectures** **Seminar**	
Module Code	ENLA107		
ECTS Credits	2		
SWL (hr/sem)	75		
Module Level	1	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	LOE
Module Leader	Nebras Essam Mohammed	**e-mail**	Nebras.e.alattar@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval		**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 objective of teaching English has two main aspects: 1. Language aspect: Words, sentences, pronunciation, spelling and grammar. 2. Literature aspect: Words, sentences, expressing ideas, feelings and experiences.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To develop the skill of speaking, reading, writing and listening 2. To enable the students for the use of grammar correctly, 3. To enable the students to analyze the element of language and establish the appropriate relationship among linguistic components 4. Improving students' oral communication and presentation skills. To enhance students' speech delivery and presentation skills
Indicative Contents المحتويات الإرشادية	Part of speech Questions with question words Pronouns Possessive adjectives A, an & Plural nouns + Vocabulary Auxiliary verbs + reading skill Tenses: Simple present Tenses: Past Simple 1+Past Simple 2 writing skill+ reading skill There is/ There are Some & any + that & this Past Simple - irregular verbs Modal verbs Adverbs + like and would like
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Audio-lingual: The theory behind this method is that learning a language means acquiring habits. There is much practice of dialogues of every situation. New language is first heard and extensively drilled before being seen in its written form. 2. The Silent Way emphasizes learner autonomy. The teacher acts merely as a facilitator trying to encourage students to be more active in their learning. The main of this way of teaching is for the teacher to say very little, so students can take control of their learning. There's a big emphasis on pronunciation and a large chunk of the lesson focuses on it. This method of learning English follows a structural syllabus and grammar, vocabulary and pronunciation are constantly drilled and recycled for reinforcement. The teacher evaluates their students through careful observation, and it's even possible that they may never set a formal test as learners are encouraged to correct their own language errors. 3. Online assessment as (assignments, open discussion, quizzes via Canvas).

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	43	**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**	3	20% (10)	3, 7, 14	1-4
	Assignments	10	10% (10)	3,5,8,11,13, 14	1-2
	Projects	5	5%(5)		1-2
	Report	5	5%(5)		1-2
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	all
	Final Exam	2 hr	50% (50)	16	all
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Part of speech
Week 2	Questions with question words
Week 3	Pronouns
Week 4	Possessive adjectives
Week 5	A, an & Plural nouns + Vocabulary
Week 6	Auxiliary verbs + reading skill
Week 7	Tenses : Simple present
Week 8	**Mid-term exam**
Week 9	Tenses: Past Simple 1+Past Simple 2

Week 10	writing skill+ reading skill
Week 11	There is/ There are
Week 12	Some & any + that & this
Week 13	Past Simple - irregular verbs
Week 14	Modal verbs
Week 15	Adverbs + like and would like
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	None
Week 2	None
Week 3	None
Week 4	None
Week 5	None
Week 6	None
Week 7	None

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New headway plus/ John and Liz Soars – Beginner	Yes
Recommended Texts	Fundamentals of English grammar, Betty Schrampfer Azar, Edition: 3rd full edition with answer keys	No
Website	https://learnenglish.britishcouncil.org/general-english/word-on-the-street/oxford/oxford-university Oxford guide to English grammer by John Eastwood	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
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Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

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	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser and Optoelectronics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ENGINEERING PHYSICS			**Module Delivery**	
Module Type	SUPLEMENT			**Theory** **Lecture** **Lab.**	
Module Code	LOEC112				
ECTS Credits	7				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Laser & Optoelectronics		**College**	LOE	
Module Leader	Dr.Suad.M.Kadhim		**e-mail**	suad.m.kadhim@uotechnology.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**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 introduce students with the concepts of light. 2. To familiarize the students with the classical and quantum concepts and wide range of its applications. 3. To make students familiar with the concept of electromagnetic waves propagation in different mediums. 4. This is the basic subject for all electrical and optical devices.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To introduce students with the principles of light laws and the equations. 2. To make students familiar with the principles of classical and quantum laws and applications. 3. To familiarize the students with the knowledge of polarization, lenses and mirrors equations. 4. Prefacing to various applications of physical devices. 5. Describe the basic parts of Michelson's interferometer. 6. Define Brewster's law. 7. Identify the basic elements Young's Double Slit Experiment. 8. Discuss the principle work in photoelectric effect. 9. Discuss the various properties energy level in Hydrogen atom. 10. Explain the continuous and lines spectra.
Indicative Contents المحتويات الإرشادية	

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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
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**	3	15% (15)	2, 5, 7,	LO #1-3, 5-7
	Assignments	1	5% (5)	2, 5, 9	LO # 3, 4, 6 and 7
	Lab.	1	15% (15)	continuous	-
	Report	1	5% (5)	-	-
Summative assessment	**Midterm Exam**	1 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	The nature and propagation of light 1-1 The nature of light 1-2 Sources of light 1-3 Reflection and refraction 1-4 Index of Refraction and the Wave Aspects of Light
Week 2	Reflation and Refraction at Plane Surfaces 2-1 Huygens Principle 2-2 Total internal reflection 2-3 Refraction by Prims 2-4 Absorption 2-5 Dispersion
Week 3	Mirrors 3-1 Image Formation by a Plane Mirror 3-2 Sign Rules

	3-3 Image of an Extended Object plane Mirror
Week 4	4-1 Reflection at a Spherical Surface 4-2 Concave Mirrors 4-3 Convex Mirrors
Week 5	Lenses and Optical Instrument 5-1 Converging and Diverging lenses 5-2 Image as Object for Lenses 5-3 The lensmarker's equation
Week 6	5-4 Cameras 5-5 The Magnifier 5-6 Microscopes 5-7 Telescopes
Week 7	Mid-term Exam
Week 8	Polarization 8-1 Polarization by Reflection 8-2 Circular and Elliptical Polarization 8-3 Polarizing Filters
Week 9	8-4 Using Polarizing Filters 8-5 Photoelasticity
Week 10	Interference 9-1 Principle of Interference 9-2 Constructive and Destructive Interference 9-3 Young's Double Slit Experiment
Week 11	9-4 Intensity Distribution in Interference Fringes 9-5 Intensity Related to the Phase Difference and Path Difference 9-6 Interference in Thin Films
Week 12	10-1 Newton's Rings 10-2 Thin Coating on Glass 10-3 -9 The Michelson Interferometer
Week 13	Diffraction 11-1 Fresnel and Fraunhofer Diffraction by single slit 11-2 The Plane Diffraction Crating 11-3 The Resolving Power of Optical Instruments
Week 14	Photons, Electrons, and Atoms 12-1 Thermionic Emission 12-2 The Photoelectric Effect 12-3 Threshold Frequency and Stopping Potential 12-4 Line Spectra 12-5 Einstein's Photon Explanation
Week 15	13-1 Absorption Spectra 13-2 The Bohr Mode 13-3 The Hydrogen Spectrum
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Lab1: The law of Reflection and Refraction**
Week 2	**Lab2: Mirrors**
Week 3	**Lab3: Lenses**
Week 4	**Lab4: Determination of the refractive index of a liquid by a liquid lens method**
Week 5	**Lab5: Laser beam divergence angle**
Week 6	**Lab6: Laser Wavelength Measurement with a Simple Ruler**
Week 7	**Lab7: Michelson Interferometer**
Week 8	**Lab8: The Photoelectric Effect**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	University Physics 12Th Edition, Sears And Zemansky's With Modern Physics, , Hugh D. Young, Carnegie Mellon University, Roger A. Freedman, University Of California, Santa Barbara.	No
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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	F – Fail	راسب	(0-44)	Considerable amount of work required

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	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser and Optoelectronics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	DEMOCRACY AND HUMAN RIGHTS	**Module Delivery**	
Module Type	BASIC	**Theory** **Lecture** **Seminar**	
Module Code	DEHR105		
ECTS Credits	2		
SWL (hr/sem)	50		

Module Level	1	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Dr. Moayad Y. khudhair	**e-mail**	Moayad.y.khudhair@uobaghdad.edu.iq
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	None	**e-mail**	None
Review Committee Approval	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. يهدف المهج الى توفير شامل لمفهوم حقوق الانسان ، بما في ذلك تطورها التاريخي والاسس الفلسفية والاطار القانوني الدولي الذي يحكم الانسان. 2. توضيح مفاهيم حقوق الانسان في كافة الجوانب التي تتعلق بالانسان وشروط الحرية والديمقراطية التي يتوجب ان يتعلم ويعرفها الطالب في كافة مجالات الحياة اليومية. 3. يُمكن الطلاب من امتلاك القدرة على تحديد وتحليل الاشكال المختلفة لانتهاكات حقوق الانسان التي تحدث عالميا ومحليا 4. تعريف الطالب بالمواثيق الدولية الرئيسية لحقوق الانسان مثل الاعلان العالمي لحقوق الانسان والاتفاقيات والمعاهدات الاقليمية لحقوق الانسان
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. سوف يكتشف الطلاب تطبيق مبادئ حقوق الانسان في سياقات مختلفة بما في ذلك المجالات الاجتماعية والقفافية والاقتصادية والسياسية مثل المساواة بين الجنسين والتمييز العنصري وحقوق اللاجئين والمهاجرين 2. فهم دور المؤسسات الدولية مثل الامم المتحدة والهيئات الاقليمية في تعزيز حقوق الانسان وحمايتها .سيقوم الطلاب بتقييم لفعالية هذه المؤسسات وآلياتها لمعالجة انتهاكات حقوق الانسان وضمان المساءلة. 3. تطوير مهارات الطلاب في الدفاع عن حقوق الانسان ومناصرة حقوق الانسان بما في ذلك البحث عن انتهاكات حقوق الانسان وتوثيقها وكتابة التقارير والدعوة لتغيير السياسات والمشاركة في حملات التوعية العامة .
Indicative Contents المحتويات الإرشادية	يتضمن المحتوى الارشادي المحاور الموضوعية الاساسية وكما يلي المبادئ العامة لحقوق الانسان مواثيق حقوق الانسان الحقوق المدنية والسياسية والحقوق الاجتماعية والاقتصادية والثقافية الحق في الحياة والحرية والامن والحق في محاكمة عادلة وحرية الفكر والضمير والدين وعدم التعرض للتعذيب حرية التجمع وتكوين الجمعيات وحرية الحركة والحق في التعليم والصحة مراقبة حقوق الانسان وتوثيق حقوق الانسان ونشاط حقوق الانسان والتربية على حقوق الانسان

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	تعتبر حضارات وادي الرافدين اقدم الحضارات البشرية وأولها اهتماما بحقوق الانسان "وان اقدم وثيقة لحقوق الانسان كانت سومرية" ان القانون والعدالة والحرية كانت من اساسيات الفكر العراقي القديم ومنذ بدء التدوين في الالف الثالث قبل الميلاد ، وكان العراقيون يطالبون عاهلهم دوما في مختلف العصور التاريخية بوضع قواعد وتطبيق اجراءات تضمن للجميع الحرية والعدالة الاجتماعية والمساواة، وبهذا يكون قدماء العراقيين قد سبقوا غيرهم من

شعوب المنطقة بحوالي الف سه في وضع الاصطلاحات والقوانين التي تحفظ للفرد حريته وحقوقه وامنه..لذلك يتعرف الطالب ضمن حقوق الانسان في التعلم والتعليم بان هناك ضمانات حقوق الانسان على الصعيد الوطني منها ضمانات الدستورية والقضائية وضمانات سياسية التي هي النظام الديمقراطي وهما الرقابة البرلمانية ورقابة الرأي العام ، ومعرفة وتعلم تداول السلطة داخل المؤسسات وذلك على اساس حكم الاغلبية مع حفظ حقوق الاقلية .، وان حقوق الانسان في التعليم بانها المعايير الاساسية التي لا يمكن للناس من دونها ان يعيشوا بكرامة كبشر كونها هي اساس الحرية واعدالة والسلام وان من شان احترام حقوق الانسان ان يتيح امكانية تنمية الفرد والمجتمع تنمية كاملة .	

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
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	**Quizzes**	1	20% (20)	5	LO #1, 2, 10 and 11
	Assignments	1	5% (5)	2	LO # 3, 4, 6 and 7
	Projects	1	10% (10)	Continuous	
	Report	1	5% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	الاعلان العالمي لحقوق الانسان/ الديباجة ، وتكليف كل طالب بكتابة بحث عن مادة يختارها تتعلق بحقوق الانسان
Week 2	الاعلان العالمي لحقوق الانسان / ثلاثون مادة / تقدم شرح عن 10 مواد
Week 3	الاعلان العالمي لحقوق الانسان / ثلاثون مادة / تقدم شرح عن 10 مواد اخرى
Week 4	الاعلان العالمي لحقوق الانسان / ثلاثون مادة / تقدم شرح عن 10 مواد اخرى
Week 5	مفهوم الديمقراطية لغة واصطلاحا مع تاريخ الديمقراطية تفصيليا

Week 6	انواع الديمقراطية
Week 7	اركان الديمقراطية
Week 8	النزاهة ومفهوم الانتخابات وتقسيم المواطنين للمفهوم
Week 9	معايير الانتخابات النزيهه
Week 10	مفهوم العمل التطوعي
Week 11	مميزات العمل التطوعي وتطوير العمل التطوعي
Week 12	حقوق المتطوعين وتاثير العمل التطوعي على المجتمع
Week 13	كل طالب يقرأ جزء من البحث امام الطلبة ويناقش من قبل باقي الطلبة كتقييم له ولمن يسأل
Week 14	كل طالب يقرأ جزء من البحث امام الطلبة ويناقش من قبل باقي الطلبة كتقييم له ولمن يسأل
Week 15	مراجعة للمادة مع اكمال متطلبات البحوث
Week 16	امتحان نهائي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	التربية على حقوق الانسان ، وليد الشهيب الحلي و عاشور الزبيدي ، بغداد: مطبعة الاحمد، 2007، 406ص.	نعم
Recommended Texts	حقوق الانسان:تطورها –مضامينها-حمايتها-: رياض عزيز هادي ، بغداد، المكتبة القانونية ، 2011، 149ص.	نعم
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB 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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser and Optoelectronics Engineering	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	ELECTRICAL CIRCUITS		**Module Delivery**	
Module Type	CORE		**Theory** **Lecture** **Lab.**	
Module Code	LOEC111			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	**Semester of Delivery**	1	
Administering Department	Laser & Optoelectronics	**College**	LOE	
Module Leader		**e-mail**		
Module Leader's Acad. Title		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None	**e-mail**	None	
Peer Reviewer Name		**e-mail**		
Review Committee Approval		**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 circuit theory through the application of techniques. 2. This course deals with the basic concept of electrical circuits. 3. This is the basic subject for all electrical. 4. To understand Kirchhoff's current and voltage Laws problems. 5. To perform mesh and Nodal analysis. 6. To understand the sinusoidal waveforms and phasors. 7. To analyze the electrical circuits under ac currents. 8. To study the rms and average power. 9. To study the resonance and filters circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Describe electrical power, charge, and current. 5. Define Ohm's law. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of sinusoid and phasors in an electric circuit. 8. Discuss the various properties of resistors, capacitors, and inductors. 9. Explain the two Kirchoff's laws used in circuit analysis. 10. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents المحتويات الإرشادية	
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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	102	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	15% (15)	3, 6, 9	LO #1, 2, 3, 6 and 7
	Assignments	1	5% (5)	2	LO # 1-4, 6 and 8
	Lab.	1	15% (15)	Continuous	
	Report	1	5% (5)	13	One of LO #1-8
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	**DC Electrical Analysis** - Basics of electrical circuits- Ohms law - Series- parallel- complex connection
Week 2	- Kirchhoff's Laws - divider rules
Week 3	- Delta-star connection - Techniques of circuit analysis- Determinants
Week 4	- Techniques of circuit analysis- Loop (mesh) current method - Special cases of mesh current method
Week 5	- Techniques of circuit analysis- Nodal (voltage method) - Superposition Theorem
Week 6	- Thevenin's Theorem - Norton's Theorem
Week 7	- Maximum Power Transfer - Reciprocity Theorem
Week 8	**MidTerm Exam**

Week 9	**AC Electrical Analysis** - Sinusoidal Alternating Waveforms - Average and RMS Values
Week 10	- The Basic Elements and Phasors (response of the R, L, and C to a sinusoidal voltage and current. - Average power & power factor
Week 11	- Complex Numbers - Phasors
Week 12	- Series ac Circuits - Parallel ac Circuits - Series -Parallel ac Circuits
Week 13	- Power (ac) - Series resonant circuit
Week 14	Parallel Resonant circuit
Week 15	Filters - R-C low pass filters - R-C high pass filters - Pass band filters. - Stop band filters
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Ohm's Law
Week 2	Series, parallel and complex connection
Week 3	Circuits analysis - Divider Rules - Kirchhoff's Laws
Week 4	Delta – Star connection
Week 5	Thevenin's Theorem
Week 6	Norton's Theorem
Week 7	Mid Term
Week 8	Superposition Theorem
Week 9	Transient Responses of (R, L, C) circuits
Week 10	Power
Week 11	Phasors

Week 12	Resonance Circuits - Series Resonance Circuits - Parallel Resonance Circuits
Week 13	Filters - Low Pass Filter - High Pass Filter
Week 14	Filters - Band Pass Filter - Stop Pass Filter
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- Electric Circuits, Nilsson. Riedel, ninth edition. - Introductory Circuit Analysis, Robert L Boylestad, Twelfth Edition, 2014.	
Recommended Texts	Introductory AC circuit theory by K. mann and G. I. Russel.	
Websites		

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.

Ministry of Higher Education and
Scientific Research - Iraq
University of Technology
Department of Laser & Optoelectronic Engineering

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	MATHEMATICS I	**Module Delivery**	
Module Type	SUPLEMENT	**Theory Lecture**	
Module Code	LOEC113		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	**Semester of Delivery**	1
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	ahmed.w.abdulwahhab	**e-mail**	ahmed.w.abdulwahhab@uotechnology.edu.iq
Module Leader's Acad. Title	Assist.Prof.	**Module Leader's Qualification**	M.Sc.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name		**e-mail**	
Review Committee Approval	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 objective of teaching Mathematics has some main aspects: 1. The aims of teaching and learning mathematics are to encourage and enable students to: recognize that mathematics permeates the world around us. appreciate the usefulness, power, and beauty of mathematics. enjoy mathematics and develop patience and persistence when solving problems. 2. The following prominent methods for effective instruction in mathematics include the Problem-solving method, Lecture method, Questioning method, and Discovery method. Problem-solving is the most independent learning method used in teaching mathematics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will recognize problem-solving techniques appropriate to a given situation, including the development of mathematical models, the identification of assumptions, the understanding of the limitations of models, and the use of both graphical and numerical methods. 2. Comprehend, analyze, synthesize, evaluate, and make generalizations so as to solve mathematical problems. 3. Collect, organize, represent, analyze, interpret data, and make conclusions and predictions from its results. 4. Apply mathematical knowledge and skills to familiar and unfamiliar situations. 5. Recognize the basic of mathematics. 6. Define the functions, domain, range, and graph of functions. 7. Recognize how combining functions; shifting and scaling graphs. 8. Study the inverse functions and logarithms. 9. Recognize limits and continuity. 10. Study the trigonometric and inverse trigonometric functions. 11. Define differentiation, the basic rule of differentiation, and the application of differentiation. 12. Study the Integration; Indefinite integral and the basic rule of -integrations. 13. Identify the standard method of integration. 14. Study the definite integral and their applications in calculating the area under the curves. 15. Study the integration by substitution. 16. Study the integration by parts.
Indicative Contents المحتويات الإرشادية	

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 much homework 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	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
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**	1	20 % (20)	3, 5, 7, 13, 14, 15	LO # 8, 9, 11, 14, 15 and 16
	Assignments	1	10 % (10)	5, 7, 14, 15	LO # 9, 11, 15 and 16
	Projects	5	5%(5)		
	Report	1	5%(5)		
Summative assessment	**Midterm Exam**	1 hr	10 % (10)		LO # 5 – 11
	Final Exam	3 hr	50 % (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	- Review of basic mathematics - Definition of functions, domain, range, and graph of functions
Week 2	- Definition of functions, domain, range, and graph of functions - Combining functions; shifting and scaling graphs
Week 3	- Inverse functions and logarithms - Limits and continuity
Week 4	- Limits and continuity - Trigonometric and inverse trigonometric functions
Week 5	- Trigonometric and inverse trigonometric functions - Differentiation; definition of differentiation
Week 6	- Basic rule of differentiation - Basic rule of differentiation
Week 7	- Application of differentiation - Application of differentiation
Week 8	**Mid Term Exam**
Week 9	- Integration; Indefinite integral - Integration; Indefinite integral
Week 10	- Basic rule of integrations - Standard Method of integration
Week 11	- Standard Method of integration
Week 12	- Definite integral - Definite integral
Week 13	- Application of integration; calculation area under the curves - Application of integration; calculation area under the curves
Week 14	- Integration by substitution - Integration by substitution
Week 15	- Integration by parts - Integration by parts
Week 16	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- Thomas, Calculus, 12th Edition, 2010.	
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

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