	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	New Headway Plus			**Module Delivery**	
Module Type	BASIC			☒**Theory** ☐**Lecture** ☐**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	URENG1				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Salam E. Hammeed		**e-mail**	salam.dulaimi@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD	
Module Reviewer	Manar Thayer Mansour		**e-mail**	manar.thaer@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Enable students to acquire knowledge and understanding of the basic grammar rules by testing their knowledge of the correct structure of the English sentence. 2. Enable students to understand the structures of writing and what is required to write a good academic essay. 3. Enable students to use the most efficient method of attacking the reading passage to answer questions correctly in a limited time. 4. Enable students to identify their weaknesses and strengths by assess their tests.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explanation and clarification of the lecture using the whiteboard and the use of video lectures. 2. Making a group discussion during the lectures to discuss topics that require reflection and analysis. 3. Presenting a set of critical thinking questions during the lectures such as what, how, when and why for specific topics. 4. Giving students homework that requires explanations and solving through reasonable methods. 5. Giving students homework that requires explanations in causal ways.
Indicative Contents المحتويات الإرشادية	– The skills goals special to the course. – Ability to independently investigate and resolve an original problem. – Preparation for later advanced study.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Write something like: The main strategy that will be adopted in introducing this unit is to encourage students to participate in solving homework exercises, while improving and expanding their critical thinking skills. This will be achieved through classes and interactive tutorials and by thinking about the type of simple experiments that include some sampling activities that are of interest to the students.

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

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	10% (10)	Continuous	All
	Onsite Assignments	1	10% (10)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Simple present and simple past**
Week 2	**Past and present continuous, Past and present perfect**
Week 3	**Strategies of writing different essays**
Week 4	**General outline of an academic essay**
Week 5	**Writing an academic essay**
Week 6	**Rules 1-3 - every subject has a verb** **- present participles** **- past participles**
Week 7	**Rules 4-6 - coordinate connectors**

	- Adverbial connector **- contrast adverbial connector**
Week 8	**Rules 1-6 (Discussion, questions and typical answers)**
Week 9	**Reading- (Answering main idea questions correctly)**
Week 10	**Reading - Identify the organization of ideas**
Week 11	**Reading Find pronoun referents**
Week 12	**Determine meanings from word parts** **Determine meanings of difficult words**
Week 13	**A review of what was studied in the previous lectures with questions and discussion of typical answers**
Week 14	**Mid Exam**
Week 15	**Final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Headway- Upper intermediate- 3rd Edition: Liz and John Soars, 2005.	YES
Recommended Texts	Preparation course for the TOEFL TEST- Deborah Phillips, 2003.	YES
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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Democracy & Human Rights			**Module Delivery**	
Module Type	BASIC			☒**Theory** ☐**Lecture** ☐**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code	URDEM				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1	**Semester of Delivery**		1
Administering Department		MPHY	**College**	College of Science	
Module Leader	Ihab Ntiq khalid		**e-mail**	ihab.natiq@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		MSc
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The goal of studying human rights and democracy is to enhance understanding and awareness of human rights issues and the fundamental principles of democracy. There are several key objectives in studying this subject: 1. Understanding human rights: The study of human rights aims to familiarize you with the core concepts of human rights and their fundamental value in society. You will learn about the history and legal development of human rights, as well as the international treaties and agreements related to this subject. 2. Awareness of the core principles of democracy: You will become acquainted with the concept of democracy and its core values, including the rule of law, citizenship rights, and political participation. You will also learn about different systems of governance and how democratic principles are applied in different societies. 3. Familiarity with current challenges: You will learn about current challenges and issues in the field of human rights and democracy. You will study issues related to discrimination, social justice, women's rights, minority rights, children's rights, and refugee rights, as well as how to address these challenges within a democratic framework. 4. Application of concepts to real-world situations: You will learn how to apply the concepts and principles studied in human rights and democracy to practical situations. You will study the various roles of human rights organizations and democratic institutions, and how to work towards promoting human rights and enhancing democracy in societies. 5. Development of critical and analytical skills: You will learn how to analyze issues related to human rights and democracy and evaluate the legal, ethical, and political contexts surrounding them. You will practice formulating strong arguments and providing constructive criticism of unjust policies and practices. By studying human rights and democracy, you will acquire the necessary knowledge and understanding to contribute to the promotion of human rights and democracy in society and work towards creating positive

	change.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The University of Al-Nahrain works through teaching the subject of human rights and democracy to promote education, awareness, and train students on the importance of active participation in various aspects of public life. This includes promoting respect for the principles of human rights, active engagement in political and cultural life, and fostering values, beliefs, and positions that encourage all students to support their own rights and the rights of others. It also facilitates an understanding of the shared responsibility of this group in making human rights a lived reality, equipping them with knowledge, skills, and attitudes that enable them to comprehend these rights and adhere to them.
Indicative Contents المحتويات الإرشادية	-Understanding the concept of rights and the concept of human beings, both linguistically and terminologically, and understanding the concept of human rights and studying the legal personality of humans, as well as the characteristics of natural persons. - Understanding the historical development of the idea of human rights in ancient and medieval eras, and the concept of human rights in divine scriptures. - Studying the sources of local and international human rights. - Studying the guarantees of human rights and understanding constitutional and judicial guarantees, as well as guarantees of human rights in Islam. - Understanding the role of organizations in human rights at the regional and international levels. - Studying the impact of globalization on human rights. - Studying the concept of democracy, its evolution, definition, and dimensions. - Studying representative democracy and understanding the representative system and its legal nature. - Understanding the concept of elections and its legal adaptation. - Understanding the organization of elections, including the delineation of electoral districts, electoral lists, candidates, election campaigns, and voting. - Studying electoral systems and understanding direct elections, indirect elections, individual elections, and list-based elections. -Understanding the advantages and disadvantages of democracy.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. POWERPOINT 2. Writing reports 3. Online learning 4. Field visits

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

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	10% (10)	Continuous	All
	Onsite Assignments	1	10% (10)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	The concept of human rights
Week 2	Human rights in ancient civilizations
Week 3	Human rights in divine laws and religions
Week 4	Human rights resources
Week 5	Human rights guarantees and means of protecting them
Week 6	The role of organizations in protecting human rights
Week 7	Globalization and human rights
Week 8	The concept of democracy and Representative democracy.

Week 9	The concept of election and its legal adaptation
Week 10	Organizing the election process and Election systems
Week 11	Formation of the electorate
Week 12	Obstacles and Foundations of Good Governance
Week 13	Disadvantages and advantages of democracy
Week 14	**Mid Exam**
Week 15	**Final Exam**

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Maher Saleh Allawi Al-Jubouri, Human Rights, Children and Democracy, The Law Library, 2009	YES
Recommended Texts	Dr. Hamid Hanoun Khaled, Human Rights, Al-Sanhouri Library, 2015	NO
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
Note:				

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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Analytical chemistry			**Module Delivery**	
Module Type	SUPLEMENT			☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**	
Module Code	CREQ1105				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Amina mohsen abass		**e-mail**	Amina.mohsen@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	PhD	
Module Tutor	Shams aws ismael		**e-mail**	Shams.aws@nahraininiv.edu.iq	
Module Reviewer	Dena ahmed hashem			Dina.ahmed@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Introduction to Analytical Chemistry with a goal of understanding the reason for doing analytical chemistry and the basic steps of dealing with analytical issues present for a professional chemist. 2. Full introduction to the weights and volumes concept in chemistry reaching a full understanding of the mole concept. 3. The curriculum develops to learn the main units regarding concentration in analytical chemistry and the relations between them and the ability to switch them. 4. Studying Stoichiometry, in relation to the mole concept. 5. A basic understanding of gravimetric methods and solubility.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learning the correct methods to understand analytical issues. 2. Introduction to main definitions for volumetric and gravimetric analysis. 3. Understanding the Mole unit and studying Stoichiometry. 4. Understanding main units in analytical chemistry. 5. General introduction to solubility and common ion effect. 6. Develop student abilities to adapt units and numbers and exchange them. 7. Learn the ability to choose an analytical method for any analytical issue. 8. Develop the ability to interact and balance chemical equations and do a stoichiometry. 9. Develop basic abilities to interact with chemicals at an analytical lab and methods of detecting some elements.
Indicative Contents المحتويات الإرشادية	1. Areas of chemical analysis 2. The current role of analytical chemist 3. Main branches of analytical chemistry 4. Classification of quantitative methods 5. Analytical Methodology 6. The concept of mole (mol) 7. The molar mass (molecular weight) 8. The mole calculations 9. Concentration units a. Molarity and Normality

	b. Molality c. dilution d. volume per volume e. weight per weight f. weight per volume g. ppm and ppb 10. Concentration units interchange 11. Stoichiometry 12. limiting and excess concept 13. Solubility and Ksp 14. Common ion effect
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- In class interactive lectures involving educational videos - Practical in lab lectures - Adapting interactivity with student's interaction by raising a question and asking the group to find the relevant answers to them as a main way of teaching. - 2hrs per week tutorial focused mainly on expanding solving numerical questions

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	60	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	5% (5)	Continuous	All
	Lab	1	15% (15)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1-2	**Learning basics of analytical chemistry and scientific steps of analysis.**
Week 3-5	**Solution preparation and concentration (molecular mass, Moles, Molarity, Molality, Normality, and other concentration units)**
Week 6-8	**units interchange (mol, ppm, ppb, w/w, w/v, v/v)**
Week 9-12	**Stoichiometric Relationships (balancing chemical equation and stoichiometry)**
Week 13	**Gravimetric methods of analysis (solubility and common ion effects)**
Week 14	**Mid Exam**
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Lab introduction and basic glassware.
Week 2	Lab 2: Analysis and identification of Group I Cations (Ag^+, Hg_2^{2+} and Pb^{2+} – insoluble chlorides.
Week 3	Lab 3: Analysis and identification of Group I Cations in an unknown sample.
Week 4	Lab 4: Analysis and identification of Group II Cations (Hg^{2+}, Pb^{2+}, Cu^{2+}, Bi^{3+}, Cd^{2+}, As^{3+}, Sb^{3+} and Sn^{4+} – insoluble sulphides in acidic.
Week 5	Lab 5: lab review
Week 6	Lab 6: Analysis and identification of Group II Cations in an unknown sample.
Week 7	Lab 7: Analysis and identification of Group III Cations (Al^{3+}. Fe^{3+}, Co^{2+}, Ni^{2+}, Cr^{3+}, Zn^{2+} and Mn^{2+} – insoluble sulphides.
Week 8	Lab 8: lab review
Week 9	Lab 9: Analysis and identification of Group III Cations in an unknown sample.
Week 10	Lab 10: Analysis and identification group IV Cations (Ca^{2+}, Sr^{2+} and Ba^{2+} – carbonate precipitates.
Week 11	Lab 11: Analysis and identification of group IV Cations in an unknown sample.
Week 12	Lab 12: lab review

Week 13	Lab 13: Analysis and identification of Group V Cations (Mg2+, Na+, K+ and NH4+)
Week 14	Mid Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamental of analytical chemistry, D.A. Skoog, D. M.West, F. J. Holler and S. R. Crouch, 8th ed., 2004, Brooks/Cole.	YES
Recommended Texts	Analytical chemistry, "Theoretical and Metrological Fundamentals", K. Danzer, 1st ed., 2006, Springer.	NO
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
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	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Fundamental of Mechanics			**Module Delivery**	
Module Type	CORE			☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**	
Module Code	MPHY1101				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Dr. Ahmed H. Flayyih		**e-mail**	ahmad.altabbak@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	PhD	
Module Tutor	Zainab Salam Khaleefah		**e-mail**	Zainab.salam@nahrainuniv.edu.iq	
Module Reviewer	Entidhar Malik Hadi Fatimah Fadhil Abd		**e-mail**	entidhar.malik@nahrainuniv.edu.iq fatimahfadhil33@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	Mechanics is one of the basic subjects for first year students in colleges of science. The aim of this semester is to provide the student with knowledge of the foundations of classical physics, including the laws of motion, equilibrium, concepts of energy and work, and other important concepts.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Providing the student with the basic concepts of the laws of motion. 2. Learning basic concepts on which physical laws depend, such as equilibrium, conservation of energy and work. 3. Providing the student with scientific experience, practical skills and solving scientific problems using simplified mathematical methods		
Indicative Contents المحتويات الإرشادية	Chapter One: Vector Algebra Chapter Two: Laws of Motion Chapter Three: Newton's Laws of Motion Chapter Four: Energy Chapter Five: Momentum and Collision		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The learning strategy depends on the following: 1. Feeding the student with theoretical foundations and concepts from theoretical lectures 2. Daily and semester tests 3. Assigning students to solve the required mathematical problems and discussing them during the class		

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	135	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	5% (5)	Continuous	All
	Lab	1	15% (15)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Chapter One: Introduction to vector algebra, vector values and eigenvalues, types of vectors, addition and subtraction of vectors.
Week 2	Scalar and vector multiplication, triple scalar and vector multiplication, descent, solving math problems and homework.
Week 3	Chapter Two: Units and their conversions, displacement, velocity, acceleration, laws of uniform linear motion in one dimension.
Week 4	Free fall, problem solving and homework.
Week 5	Laws and applications of laws of motion in two directions, examples and assignments.
Week 6	Chapter Three: Newton's Laws of Motion (First, Second and Third Laws).
Week 7	Applications of Newton's laws of motion.
Week 8	Mid Exam
Week 9	Chapter 4: Energy, Work, Examples and Homework.
Week 10	Work and energy theory, examples and applications.

Week 11	Gravitational potential energy, examples and applications.
Week 12	Spring potential energy, applications and examples.
Week 13	Chapter 5, Momentum and Collision.
Week 14	Law of conservation of momentum, collision, examples and applications.
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Instructions to students, Basic personal needs and other requirements. Writing the account of an experiment, Introduction to graphical representation of experimental data, Errors, their determination and minimization, least square fitting. Units.
Week 2	Lab 2: Graph Lab
Week 3-4	Lab 3: Forces and Equilibrium
Week 5-6	Lab 4: Hooks Law
Week 7-8	Lab 5: Spiral Spring: Determination of force constant and effective mass of a spring.
Week 9-10	Lab 6: Simple Pendulum
Week 11-12	Lab 7: The bifilar suspension
Week 13	Lab 8: The bifilar suspension
Week 14	Mid Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	College Physics, Raymond, A. Serway, Eight edition, USA, 2009	YES
Recommended Texts	University Physics, SAMUEL J. LING, Volume 2, 2021	YES
Websites	https://fizikamentor.wordpress.com/wp-content/uploads/2018/04/college-physics.pdf https://faculty.ksu.edu.sa/sites/default/files/physics_serway.pdf	

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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

Ministry of Higher Education and Scientific Research - Iraq
Al-Nahrain University
College of Science
Department of Medical Physics

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Electricity and Magnetisim			**Module Delivery**	
Module Type	CORE			☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**	
Module Code	MPHY1102				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Alaa Jabbar Ghazai		**e-mail**	dr.alaa.ghazai@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	PhD	
Module Tutor	Zahraa malik Rafah mohmmed		**e-mail**	zahraa.malik@nahrainuniv.edu.iq rafah.m.h@nahrainuniv.edu.iq	
Module Reviewer	Raghda harith		**e-mail**	raghda.h.h@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	1. Understanding the electric charge and the electric field. 2. Knowing the composition of matter. 3. Knowing the types of matter. 4. Knowing the types of electrical charging. 5. Learn about Coulomb's law. 6. Identify the electric field of charges and electric field lines. 7. Identify forces, moments, and electrical potential energy. 8. Knowing the Gauss's law. 9. Identify the electric flux and the enclosed charge. 10. Identify the electrostatic field.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. For students to be able to distinguish between different types of materials and their ability to conduct electricity. 2. Student's ability to charge materials electrically. 3. Students can be able to identify what happens inside electrically charged materials and the movement of charges inside the material. 4. Distinguishing between Coulomb's, Gauss's and Ohm's laws and what students achieve in studying each law. 5. Students' ability to test whether materials are conductive or non-conductive. 6. Students' ability to distinguish between the parts of an electrical circuit while drawing this circuit. 7. Students' ability to perform many calculations such as forces, moments, potential energy, electric flux, resistance, capacitance, etc. 8. The ability of students to apply what has been calculated theoretically in a practical way in the future.		
Indicative Contents المحتويات الإرشادية	- Electric charge, electric field, Conductors, insulators and induced charges. [15 hrs.] - Coulomb's Law, Electric field lines, electric dipole, force and		

	potential energy. [15 hrs.] - Gauss's Law, The electrostatic field, Ohm's Law, Capacitance and resistance. [20 hrs.] - Inductive CCT and Faraday's Law. [15 hrs.]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- Discussing the topics of the curriculum book and supporting references Theoretical lectures including problem solving and discussion of homework. - Asking students a set of thinking questions during the lectures for specific topics. - Giving students homework that requires finding self-solutions.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	135	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	5% (5)	Continuous	All
	Lab	1	15% (15)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**General Introduction**
Week 2	**Electric charge and electric field**
Week 3	**Conductors, insulators and induced charges**
Week 4	**Exercises**
Week 5	**Coulomb's Law**
Week 6	**Electric field lines, electric dipole**
Week 7	**force and potential energy**
Week 8	**Exercises**
Week 9	**Gauss's Law**
Week 10	**The electrostatic field**
Week 11	**Ohm's Law**
Week 12	**Capacitance and resistance**
Week 13	**Faraday's Law**
Week 14	**Mid Exam**
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1-2	Lab 1: Ohm's Law
Week 3-4	Lab 2: Non Ohmic
Week 5-6	Lab 3: parallel and series connection of resistance
Week 7-8	Lab 4: Maximum power transfer
Week 9-10	Lab 5: Lenz's law
Week 11-12	Lab 6: Electromotive force (E. m. F)
Week 13	Lab 7: parallel and series connection of capacitor
Week 14	Mid Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Edward M.Purcell, Electricity and magnetism, 3rd edition, 2013	YES
Recommended Texts	University physics with modern physics, 13th edition, 2011	YES
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:				

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ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics			**Module Delivery**	
Module Type	SUPLEMENT			☐**Theory** ☒**Lecture** ☐**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	CREQ1101				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Ayat Abdulaali Neamah		**e-mail**	ayatneamah@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PHD	
Module Tutor	Mays Majid Mohamad		**e-mail**	mays.majid@nahrainuniv.edu.iq	
Module Reviewer	Mays Majid Mohamad		**e-mail**	mays.majid@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	The aim of this course is for student to gain proficiency in computations. In calculus, we use two main tools for analyzing and describing the behavior of functions: limits and derivatives. Students will use these tools to solve application problems in a variety of setting ranging from chemistry to Biology.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To determine the solution set of inequalities involving absolute value, 2. To determine domain, range and operation of some one variable functions and the graphs. 3. To determine limit and continuity of one variable functions. 4. To determine derivate of one variable functions. 5. To determine the solution of problems involving the derivate of one variable function. 6. To determine inverse function and its derivative. 7. To learn about application of derivatives. 8. To determine proper integral of one variable functions. 9. To determine integral involving the fundamental theorem of Calculus and method of substitution. 10. To determine the solution of problems involving the integral of one variable function. 11. To compute integral involving transcendental functions. 12. To compute integral with advanced integration techniques. 13. To demonstrate ability to think critically by recognizing patterns and determining and using appropriate techniques for solving a variety of integration problems.		
Indicative Contents المحتويات الإرشادية	1. Function and its graph, operation on function, trigonometry function. 2. Definition, theorems of limit, trigonometry function limit, limit on infinity, infinite limit, continuity function, 3. Definition and rule of derivate, derivate of trigonometry function, chain rule, higher order derivate, implicit derivate, related rate, basic concept of differential, 4. Natural logarithm function, inverse function and its derivate, natural exponential function, general exponential function, general logarithm function, hyperbolic function and its inverse. 5. Proper integral, Fundamental Theorem of Calculus, basic rules of integration.		

	6. Methods of integrations, method of substitution, partial integration method, trigonometry integral and integral of rational function with partial fraction. 7. Improper integrals, test for convergence and divergence of improper integrals. 8. Application of Definite Integrals, Mean value theorem of integration, Area, solid revolution volume and Arc length.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The module will be presented to the students through a specified series of lectures, supported by practice and directed study outside the classroom. Formative assessment takes place throughout the module during lectures and feedback is given during these lectures.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	1	10% (10)	Continuous	All
	Online Assignments	1	10% (10)	Continuous	All
	Onsite Assignments	1	10% (10)	Continuous	All
	Report	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	LO # 1-11
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Preliminaries, elementary Functions, Domain and range of functions and graphing.
Week 2	Limits, Continuity, Limits at infinity, The Sandwich Theorem and some trigonometric limits, Properties of continuous functions.
Week 3	Formal definition of the derivative, The power rule, the basic rules of differentiation.
Week 4	The product and quotient rules, and the derivatives of rational and power functions.
Week 5	The chain rule and higher derivatives. Derivatives of trigonometric functions.
Week 6	Derivatives of exponential functions. Derivatives of inverse and logarithmic functions.
Week 7	The Mean Value Theorem. Roll's theorem, L'Hopital's rule.
Week 8	Concavity, second derivatives test, Extrema, inflection points, and graphing.
Week 9	Graphing functions (continuous) Antiderivatives.
Week 10	The definite and indefinite integrals. Rules for indefinite integral
Week 11	The Fundamental Theorem of Calculus. (Part 1 and Part 2) and some examples. The Method of Integration (Integration by substitutions- Integration by parts)
Week 12	Mid Exam.
Week 13	The Method of Integration (Integration of rational functions- Trigonometric Techniques of Integration)
Week 14	The Method of Integration (Integration of product of sine and cosine – Trigonometric Substitutions)
Week 15	Final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Calculus for Biology and Medicine, fourth edition by Claudia Neuhauser & Marcus Roper.	No
Recommended Texts		
Websites	www.mathhandbook.com	

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