MODULE DESCRIPTION FORM

Module Information					
Module Title	**Computer Science**			**Module Delivery**	
Module Type	Support			- **Theoretical** - **Laboratory**	
Module Code	UOWA101				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Medical Physics		**College**	Sciences	
Module Leader	Karar Sadiq Mohsen		**e-mail**	karar.sadeq@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lect.		**Module Leader's Qualification**	MS. C.	
Module Tutor	Ali Abdul Hussein Ibrahim		**e-mail**	ali.abdulhussein19@uowa.edu.iq	
Peer Reviewer Name	Asst. Prof Haider Mohammed Ali Al-Ghanimi		**e-mail**	hayder.alghananmi@uowa.edu.iq	
Scientific Committee Approval Date	15/09/2024		**Version Number**	**V 1.0**	

Approval of the Dean of the College **Department Head Approval**

Relation with other Modules			
Prerequisite module	No	**Semester**	/
Co-requisites module	No	**Semester**	/

Module Aims, Learning Outcomes and Indicative Contents	
Subject objective	This course aims at: 1- Introducing a brief idea about the development of Computers. 2- Having a good about the desktop, settings and personalization of Windows. Next, we will learn to organize information, manage files and settings in the Setting and Control Panel sections. In the end, we will examine the Windows applications. 3- Learning about the MS Word: we are going to review Microsoft Office Word and check how we can edit our texts, use the professional tools of this software and prepare our texts for presentation to other users. 4- Learning the MS Excel: data entry, data analysis tools and most used functions, discussed with examples. Learning MS PowerPoint: teaching the different PowerPoint tools, lessons are taught to show creative ideas for using the tools. The ideas used in these lessons will help you to be creative and professional in designing presentation slides as well as producing graphic content.
Subject learning outcomes	The student would be able to: 1- Use window operation system user interface. 2- Gain a thorough understanding of the Windows operating system, its features, and functionality. 3- Develop the ability to navigate and manage the Windows interface, MS word, MS excel, and PowerPoint efficiently. 4- Acquire skills in configuring system settings, managing files and folders, and using built-in tools and utilities. 5- Learn to create and format documents, spreadsheets, presentations, and emails effectively. 6- Understand advanced features of Microsoft Office, such as formulas and functions in Excel, collaboration tools, 7- Develop problem-solving skills specific to Windows and Microsoft software, such as diagnosing and resolving common software issues. 8- Learn to troubleshoot and debug problems related to Windows configuration, software installations, and compatibility.

Guidance content	Indicative content includes the following: The purpose of computer science training is to review and learn the Windows operating system and Microsoft software. The operating system manages system resources and provides a platform where other software can run and users can use their services. Also, MS word, excel, and power point are so useful for create edit any kind of documents

Learning and Teaching Strategies	
Strategies	Lectures: Engaging and interactive lectures to introduce new concepts, theories, and problem-solving techniques. Hands-on Practice: Active engagement and practical exercises are key to learning computer software effectively. Demonstration and Explanation: Instructors demonstrate software features and explain concepts using examples and visuals. Step-by-Step Tutorials: Providing clear instructions and visuals helps learners follow along and grasp software functionalities. Collaborative Learning: Encouraging collaboration among learners through group projects or peer feedback fosters a supportive learning environment. Online Resources and Documentation: Supplementing learning with online resources, official documentation, and forums enhances understanding and troubleshooting. Real-World Applications: Relating software learning to real-world scenarios increases student engagement and practical relevance.

Student Workload (SWL)			
Scheduled hours (hr./Sem.)	60	**Scheduled hours (hr./week)**	4
Unscheduled hours (hr./ Sem.)	12	**Unscheduled hours (hr./week)**	1
Total (hr./ Sem.)	72 + 3 final = 75		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	4.7	1,2,3
	Online Assigs.	1	10% (10)	10	3,4
	Onsite Assigs.	2	10% (5)	7,14	1 – 8
	Reports	1	10% (10)	9	4,5,6
Summative assessment	**Madd exam**	2 hr.	10	8	6,7,8
	Final exam	3 hrs.	50	16	All
Total assessment			100 (Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Desktop, Settings and Personalization, Setting the Background, Color setting, Start Menu.
Week 2	Organizing Information, Managing Files and This PC, Set File Explorer Home Page, Lab participation, Computer Driving.
Week 3	Control Panel, Management of Default Software, Date and Time, Font, Managing Languages
Week 4	MS Word: Editing Tools, Font Settings, Paragraph Settings, Lab Participation, Computer Driving.
Week 5	Inserting Information, Working with the Page, Tables, Images.
Week 6	Formatting the File, Familiarity with Ready Templates and How to Create a New Template, Lab Participation.
Week 7	MS Excel: Formatting in Excel, Drawing and Formatting Cells, Rows, Columns and Worksheets.
Week 8	Mid-Term Exam, practical hr. Lab participation
Week 9	Formatting Cells with Numeric Contents, Using Style for Quick Formatting.
Week 10	Conditional IF Function for Conditional Calculations in Excel, H.W_1, Lab Participation, Document Editing.
Week 11	MS PowerPoint: Getting to Know the PowerPoint User Environment.
Week 12	File Menu and Settings, Document Editing
Week 13	The Quick Access Menu, Ribbon and its Tools
Week 14	Ruler, Grid Lines and Guidelines
Week 15	Review and discussion.

Educational and teaching resources		
	Text	**Available in the library?**
Essential/Required Books	Andy Rathbone, Windows 10 For Dummies, 4th Edition Joan Lambert and Curtis Frye: Microsoft Office 2016 Step by Step	No
booksThe testatorWith it	Windows Operating System Fundamentals: Windows Operating System Fundamentals, 2019. John Walkenbach: Microsoft Excel 2016 Bible	No
Websites	- https://edu.gcfglobal.org/en/computerbasics/ - https://edu.gcfglobal.org/en/word/ - https://edu.gcfglobal.org/en/excel/ - https://edu.gcfglobal.org/en/powerpoint/	

Grading Scheme				
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	مت,سط	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

Module Information

Module Title	**General Biology**		**Module Delivery**	
Module Type	**Core**		☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MPH103**			
ECTS Credits	**9**			
SWL (hr/sem)	**225**			
Module Level	1	**Semester of Delivery**		1
Administering Department	Medical Physics	**College**	College of Sciences	
Module Leader	Dhurgham Adel Obaid	**e-mail**	dirgham.ad@uowa.edu.iq	
Module Leader's Acad. Title	Assist Lecturer	**Module Leader's Qualification**		MSc in Biology
Module Tutor	Mohammed Abd Ali Hamza	**e-mail**	mohammed.ab@uowa.edu.iq	
Peer Reviewer Name	Ali Hamed Areebi	**e-mail**	Ali.h@uowa.edu.iq	
Scientific Committee Approval Date	10/11/2024	**Version Number**		V 1.0

Relation with other Modules

Prerequisite module	None	**Semester**	/
Co-requisites module	None	**Semester**	/

Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand voltage, current and power from a given circuit. 3. This course deals with the basic concept of electrical circuits. 4. This is the basic subject for all electrical and electronic circuits. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis.
Module Learning Outcomes	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 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. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Identify the basic circuit elements and their applications. 8. Discuss the operations of sinusoid and phasors in an electric circuit. 9. Discuss the various properties of resistors, capacitors, and inductors. 10. Explain the two Kirchoff's laws used in circuit analysis. 11. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents	Indicative content includes the following. <u>Part A - Circuit Theory</u> DC circuits – Current and voltage definitions, Passive sign convention and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law. Anatomy of a circuit, Network reduction, Introduction to mesh and nodal analysis. [SSWL=15 hrs] AC circuits I – Time dependent signals, average and RMS values. Capacitance and inductance, energy storage elements, simple AC steady-state sinusoidal analysis. [15 hrs] AC Circuits II - Phasor diagrams, definition of complex impedance, AC circuit analysis with complex numbers. [SSWL=10 hrs] RL, RC and RLC circuits - Frequency response of RLC circuits, simple filter and band-pass circuits, resonance and Q-factor, use of Bode plots, use of differential equations and their solutions. Time response (natural and step responses). Introduction to second order circuits. [SSWL=15 hrs]

	Revision problem classes [SSWL=6 hrs] <u>Part B - Analogue Electronics</u> Fundamentals Resistive networks, voltage and current sources, Thevenin and Norton equivalent circuits, current and voltage division, input resistance, output resistance, coupling and decoupling capacitors, maximum power transfer, RMS and power dissipation, current limiting and over voltage protection. [SSWL=15 hrs] Components and active devices – Components vs elements and circuit modeling, real and ideal elements. Introduction to sensors and actuators, self-generating vs modulating type sensors, simple circuit interfacing. [SSWL=14 hrs] Diodes and Diode circuits – Diode characteristics and equations, ideal vs real. Signal conditioning, clamping and clipping, rectification and peak detection, photodiodes, LEDs, Zener diodes, voltage stabilization, voltage reference, power supplies. [SSWL=15 hrs] Total hrs = 105 = SSWL - (Exam hrs) = 109 - 4 = 105 hr (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	90 hrs	**Structured SWL (h/w)**	6 hr.
Unstructured SWL (h/sem)	132 hrs.	**Unstructured SWL (h/w)**	9 hrs.
Total SWL (h/sem)	222+ 3 final =225 hrs.		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	8% (2)	2,8,13	3,5,6,7,8,11
	Lab	4	8% (2)	4,6,7,12	3,5,8,11
	Online assignments	4	8% (2)	1,6,9,10	4,7,8,11
	Report	10	10% (1)	4,5,6,7,8,9, 10,12,13	1-12
	Seminar	2	6% (3)	All Weeks	1-12
Summative assessment	Midterm Exam	1hr	10% (10)	7	1 - 7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to Biology
Week 2	Cell Structure
Week 3	Cytoplasmic membrane
Week 4	Organic Compounds a. Carbohydrates b. Lipids c. Proteins d. Nucleic Acids
Week 5	Energy and Metabolism
Week 6	DNA: The Genetic Material
Week 7	The Chromosomal Basis of Inheritance
Week 8	How Cells Divide + Midterm
Week 9	Tissues, bone and cartilages
Week 10	Plant tissues and organs
Week 11	Photosynthesis
Week 12	Prokaryotes and Viruses
Week 13	Anatomy of bacteria: Surface appendages, Capsule.
Week 14	Cell wall of G.+ve & G –ve bacteria.
Week 15	Protists and Fungi
Week 16	Final exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Orientation to the laboratory. Rules of conduct and general safety.
Week 2	Microscope & cell structure
Week 3	Cells : Prokaryotic Cells and Eukaryotic Cells
Week 4	Plant Cells, and Animal Cells
Week 5	Mitosis and Meiosis
Week 6	Animal Cell Culture
Week 7	The tissues (Single epithelial tissue)
Week 8	Plant tissue under microscope
Week 9	Plant Cell Culture
Week 10	Aseptic procedures ,culture media and habitat of microbiology
Week 11	Isolation and preparation of pure culture bacteria and fungi
Week 12	Microscopic examination and general morphology of fungi
Week 13	Bacterial smear preparation
Week14-15	Simple staining of bacteria (Gram staining).
Week 16	Final exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Mader, S. S. (2004). **Human biology**. *(No Title)*. Lowe, J. S., & Anderson, P. G. (2014). *Stevens & Lowe's* ***Human Histology*** *E-Book: With STUDENT CONSULT Online Access*. Elsevier Health Sciences. Weaver, R. (2011). *EBOOK:* ***Molecular Biology***. McGraw Hill. Alberts, B., Hopkin, K., Johnson, A. D., Morgan, D., Raff, M., Roberts, K., & Walter, P. (2018). ***Essential cell biology: Fifth international student edition***. WW Norton & Company. Jawetz, M., Melinck, J., Adberg, E. A., Broks, G. O., Butel, J. S., & Ornston, N. L. (2012). **Medical Microbiology** 25.	Yes
Recommended Texts	Davis, J. (Ed.). (2011). ***Animal Cell Culture***. Wiley-Blackwell..	No
Websites	N/A	

Grading Scheme				
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

Module Information					
Module Title	**Human Rights and Democracy**			**Module Delivery**	
Module Type	Supportive			☒ **Theory**	
Module Code	**UOWA102**				
ECTS Credits	2				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Medical Physics		College	Sciences	
Module Leader	**Abbas Tahir Jari**		**e-mail**	abbas.taher@uowa.edu.iq	
Module Leader's Acad. Title	Assistant lecturer		**Module Leader's Qualification**	Ms.c	
Module Tutor	**Abbas Tahir Jari**		**e-mail**	abbas.taher@uowa.edu.iq	
Peer Reviewer Name	Ali Hamed Areebi		**e-mail**	Ali.h@uowa.edu.iq	
Scientific Committee Approval Date	2024-10-11		**Version Number**	V 1.0	

Department Head Approval

Dean of the College Approval

Relation with other Modules			
Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Identifying the concept of human rights and their importance in both ancient and modern civilizations, understanding contemporary international and regional frameworks of human rights, exploring the main generations of human rights, studying the constitutional, judicial, and political safeguards for human rights, and examining the role of the United Nations in protecting human rights.
Module Learning Outcomes	1. The relationship between democracy and human rights 2. Building a comprehensive framework for democratic governance based on human rights 3. Striving to achieve the highest quality standards in teaching the subject of human rights and democracy 4. Enhancing students' cognitive abilities 5. Understanding their rights, duties, fundamental freedoms, and legal safeguards 6. Highlighting legal, international, regional, and national mechanisms for the protection of human rights 7. Expanding scientific knowledge to understand the principles of democracy and its relationship to human rights and good governance 8. The impact of state institutions and civil society organizations on the implementation of democracy and good governance 9. Understanding United Nations mechanisms 10. Identifying the restrictions placed on human rights institutions 11. Applying the Student Discipline Law in educational institutions 12. The concept and history of democracy 13. Understanding the characteristics and components of the democratic system 14. Understanding the guarantees and public freedoms
Indicative Contents	1. General Introduction: The concept of human rights (3 hours) 2. Development of the Idea and Roots of Human Rights (2 hours) 3. Human Duties and Limitations (2 hours) 4. Professional Ethics (2 hours) 5. Student Discipline Law in the Ministry of Higher Education and Scientific Research Institutions (3 hours) 6. Concept and History of Democracy (2 hours) 7. Components of the Democratic System (2 hours) 8. Elections (2 hours) 9. The Relationship Between Democracy and Human Rights (2 hours) 10. Genocide Crimes (2 hours) 11. Guarantees of Freedoms and Public Rights (2 hours) 12. Good Governance (2 hours) 13. Contemporary Democracy (2 hours)

Learning and Teaching Strategies	
Strategies	1. Explaining the lecture through tudent discussions and participation in sharing their opinions. 2. Delivering the lecture in the form of a short quiz. 3. Reading the lecture material inside the classroom.

Student Workload (SWL)			
Structured SWL (h/sem)	30 hrs.	**Structured SWL (h/w)**	2
Unstructured SWL (h/sem)	17 hrs.	**Unstructured SWL (h/w)**	1.1
Total SWL (h/sem)	47 + 3 final = 50		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	14% (7)	4,9	7,8,9,13
	Online assignment	2	14% (7)	3, 10	1,2,3,4,5,6,7,8,9
	Onsite assignment	1	5% (5)	6	4,5
	Seminar	1	7% (7)	All	1 - 12
Summative assessment	**Midterm Exam**	2hr	10	9	
	Final Exam	3hr	50% (50)	17	all
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction: General Overview of the Concept of Human Rights
Week 2	Roots of Human Rights and Their Development Throughout Human History / Evolution of the Idea of Human Rights Protection
Week 3	The International Community and Contemporary Human Rights / United Nations Mechanisms for Human Rights Protection
Week 4	Human Duties and Limitations on the Practice of Human Rights
Week 5	International Organizations and Bodies Concerned with the Defense of Human Rights / Professional Ethics
Week 6	Student Discipline Law in the Institutions of the Ministry of Higher Education and Scientific Research
Week 7	Midterm Exam
Week 8	Concept and History of Democracy
Week 9	Characteristics and Components of the Democratic System
Week 10	Civil Society Organizations and Democracy / Elections
Week 11	The Relationship Between Human Rights and Democracy
Week 12	Genocide Crimes
Week 13	Guarantees of Freedoms and Public Rights I
Week 14	Guarantees of Freedoms and Public Rights II
Week 15	Good Governance

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Human Rights: Their Development, Content, and Protection	Dr. Riyadh Aziz Hadi
Recommended Texts	Human Rights, Democracy, and Freedoms	Dr. Maher Sabri
Websites	N/A	

Grading Scheme				
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

Module Information					
Module Title	**Mechanics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MPH101**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Medical Physics		**College**	College of Sciences	
Module Leader	Ahmed Mousa Jaafar		**e-mail**	ahmed.mo@uowa.edu.iq	
Module Leader's Acad. Title	Lecturer. Dr.		**Module Leader's Qualification**	PhD in medical Physics	
Module Tutor	Asst. lect. Alhanoof S.Shakir		**e-mail**	alhanoof.salam@uowa.edu.iq	
Peer Reviewer Name	Asst. lect. Saja Basim Ali		**e-mail**	saja.b@uowa.edu.iq	
Scientific Committee Approval Date	10-11-2024		**Version Number**	V 1.0	

Relation with other Modules			
Prerequisite module	None	**Semester**	-
Co-requisites module	None	**Semester**	-

Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	The course aims to provide students with information and skills in mechanics necessary for the undergraduate level. building a strong background for those who will continue to study materials related to analytical mechanics applications
Module Learning Outcomes	The outcomes of study weeks. 1. Learning about mechanics in general physics. 2. Listing the different terms associated with mechanics. 3. Summarizing what is meant by basic mechanics. 4. Discussion, body power, power, and energy of work. 5. Descriptions of newtons laws. 6. Selecting sample machines. 7. Identifying the basic circuit elements and their applications. 8. The ability for making and managing discussions. 9. The good Explanation of density and elasticity
Indicative Contents	- Providing students with the basics and additional topics related to the outputs of thinking. -Directing questions to the students and forming discussion groups during the lectures to discuss the solution of the question that requires - Thinking and analyzing. - Giving students homework to solve questions that require self-explanations. - Assigning students to prepare reports related to the course - Applying theoretical concepts in various physical issue

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

Student Workload (SWL)			
Structured SWL (h/sem)	90	**Structured SWL (h/w)**	6
Unstructured SWL (h/sem)	132	**Unstructured SWL (h/w)**	9
Total SWL (h/sem)	222 + 3 final = 225		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	10% (2)	3,5,9,10,13	1,2,3,6,7
	Lab	4	8% (2)	4,6,7,13	3,6,7,8
	Online Assig.	3	6% (2)	3,8,12	3,4,5,6
	Reports	10	10% (1)	3,4,5,8,9,10,11,12,13,14	1 - 9
	Seminar	2	6% (3)	All	1 - 9
Summative assessment	Midterm Exam	1hr	10% (10)	7	
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	INTRODUCTION TO VECTORS
Week 2	UNIFORMLY ACCELERATED MOTION
Week 3	NEWTONS LAWS
Week 4	EQUILIBRIUM UNDER THE ACTION CONCURRENT FORCES
Week 5	EQUILBRIUM OF A RIGED BODY COPLANAR FORCES
Week 6	WORK ENERGY AND POWER
Week 7	SAMPLE MACHINES
Week 8	Mid - term exam
Week 9	IMPULSE AND MOMENTUM
Week 10	ANGULAR MOTION IN A PLANE
Week 11	RIGID- BODY ROTATION
Week 12	DENSITY: ELASTICITY I
Week 13	DENSITY: ELASTICITY II
Week 14	FLUIDS AT REST
Week 15	FLUIDS IN MOTION
Week 16	Final exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	EXP 1: Boyle's Law
Week 2	EXP 2: The Simple pendulum
Week 3	EXP 3: The Spiral Spring
Week 4	EXP 4: Static Torsion
Week 5	EXP 5: Vector Force Table
Week 6	Discussion for the experiments (1-3)
Week 7	Discussion for the experiments (4-5)
Week 8	EXP 6: ARCHIMEDES' PRINCIPAL EXPERIMENT
Week 9	EXP 7: Surface tension
Week 10	EXP 8: Viscosity of liquids
Week 11	EXP 9: Rotational motion
Week 12-13	EXP 10: Coefficient of fraction
Week 14	Discussion for the experiments (6-8)
Week15	Discussion for the experiments (9-10)
Week 16	Final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Schaum's outlines of theory and problems of college physics	No
Recommended Texts	Lecture Notes on Classical Mechanics for Physics	No
Websites	https://sites.astro.caltech.edu/~golwala/ph106ab/ph106ab_notes.pdf	

Grading Scheme				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جداً	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

Module Information					
Module Title	**Analytical Chemistry**			**Module Delivery**	
Module Type	**Core**			**Theory √** **Lab √** **Tutorial √** **Seminar √**	
Module Code	**MPH102**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	1	**Semester of Delivery**	1		
Administering Department	Medical Physics	**College**	College of Sciences		
Module Leader	Asst. Prof. Dr. Ali Jassam	**e-mail**	alijassim33@yahoo.com		
Module Leader's Acad. Title	Assist Prof. Dr.	**Module Leader's Qualification**	PHD		
Module Tutor	Ashraf Hussain Saleh	**e-mail**	ashraf.h@uowa.edu.iq		
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Scientific Committee Approval Date	2024-04-19	**Version Number**	V 1.0		

Relation with other Modules			
Prerequisite module	No	**Semester**	/
Co-requisites module	No	**Semester**	/

Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	The student learns about: - The importance of analytical chemistry and its types. - The methods of finding concentrations of chemicals and the types of chemical titration. The basic principles of quantitative and qualitative analysis methods in analytical chemistry.
Module Learning Outcomes	The students will be able to: 1- Explain the fundamentals of analytical chemistry and the steps of a characteristic analysis, moreover, expresses the role of analytical chemistry in science. 2- Compare qualitative and quantitative analyses through, a- Expresses the quantitative analysis methods, b- Expresses the qualitative analysis methods, and c- evaluate the analytical data in terms of statistics. 3- Defines acids and base with their theories and explain their behaviours, though, study their properties such as ionic equilibrium and buffers solutions. 4- Explain the volumetric analysis of the solutions and express about the gravimetric calculations. 5- Express the titrimetric analysis methods, moreover, Expresses the terms such as standard solution, titration, back titration, equivalence point, end point, primary and secondary standard. Be prepared to write research through analysing the published research papers and writing a mini-research from them.
Indicative Contents	Indicative content includes the following: 1- **The scope of analytical chemistry**: Science seeks ever-improved means of measuring the chemical composition of natural and artificial materials by using techniques to identify the substances that may be present in a material and to determine the exact amounts of the identified substance. 2- **Quantitative analysis:** this topic includes explaining the technique that uses mathematical and statistical modelling, measurement, and research to understand behavior, and how it will be useful to the student in their life. 3- **Review of elementary concept** important to analytical chemistry: Strong and weak electrolytes; important weight and concentration units, the evaluation of analytical data: Definition of terms. An introduction to gravimetric analysis: Statistical analysis of data; rejection of data; precipitation methods; gravimetric factor. 4- **Acids and bases**: explain the meaning of their concept and the available theories that were obtained to describe their behavior. 5- **Chemical equilibrium:** refers to the state of a system in which the concentration of the reactant and the concentration of the products do not change with time, and the system does not display any further change in properties. 6- **Ionic equilibrium:** The equilibrium established between the unionized molecules and the ions in the solution of weak electrolytes is called ionic equilibrium. 7- **Buffer solution**: describe an acid or a base aqueous solution consisting of a mixture of a weak acid and its conjugate base, or vice versa. 8- **Volumetric analysis** is a quantitative analytical method which is used widely. As the name suggests, this method involves the measurement of the volume of a solution whose concentration is known and applied to determine the attention of the analyte.

Learning and Teaching Strategies	
Strategies	1- Lectures 2- Discussion 3- Brainstorming Problem solving 4- Practical presentations& Simulation Method 5- Lab works (Practical in computer Lab 6- Projects Self-learning 7- Cooperative Learning.

Student Workload (SWL)			
Structured SWL (h/sem)	87	**Structured SWL (h/w)**	5.8
Unstructured SWL (h/sem)	85	**Unstructured SWL (h/w)**	5.6
Total SWL (h/sem)	**173 + 3 final = 175**		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	12% (3)	2,4,7,8	1,2,3,4
	Lab	6	6% (1)	5,6,9,10,14,15	2,3,4,5,6
	Online Assig.	3	9% (3)	3,5,10	3,4,5
	Reports	7	7% (1)	2,3,4,5	2,3,4,7,8,11,12,13
	Seminar	2	6% (3)	All	1,2,3,4,5,6
Summative assessment	**Midterm Exam**	1 hr.	20	2,4,6,9	1,3,4
	Final Exam	3 hrs.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	**Lecture 1: The Scope of Analytical Chemistry.**
Week 2	**Lecture 2: Quantitative Analysis.**
Week 3	**Lecture 3: Qualitative Analysis.**
Week 4	**Lecture 4: Acids and Bases.**
Week 5	**Lecture 5: Theories of Acids and Bases.**
Week 6	**Lecture 6: Chemical Equilibrium.**
Week 7	**Lecture 6: Chemical Equilibrium.**
Week 8	**Lecture 7: Ionic Equilibrium.**
Week 9	**Midterm Exam**
Week 10	**Lecture 8: Buffer Solution.**
Week 11	**Lecture 9: An Introduction to Volumetric Methods of Analysis.**
Week 12	**Lecture 10: Volumetric Calculations.**
Week 13	**Lecture 11: Acid Base Titration.**
Week 14	**Lecture 12: Precipitation Titration.**
Week 15	**Lecture 13: Reduction Oxidation Titration.**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Laboratory Safety and Acquaintance with Glassware and Apparatus in the Analytical Chemistry Laboratory
Week 2	Exp1: Prepare 0.1 M of Hydrochloric Acid Solution
Week 3	Exp2: Prepare 0.1 M of Sodium Chloride Powder.
Week 4	Exp3: Prepare 0.1 N of Sodium Hydroxide Powder.
Week 5	Discussion for the Reports of Experiment 1, and 2
Week 6	Discussion for the Reports of Experiment 3
Week 7	Exp4: Precipitation of Cation Elements (Ag, Cu and Pb ions).
Week 8	Exp5: Precipitation of Anion Elements (Cl and Br)
Weel 9	Discussion for Experiment 4
Week 10	Discussion for Experiment 5
Week 11	Exp6: Titration of Strong Acid with Strong Base
Week 12	Exp7: Titration of Sodium Hydroxide with Hydrochloric Acid Titration of Strong Acid with Weak Base
Week 13	Exp7: Titration of Sodium Hydroxide with Hydrochloric Acid Titration of Strong Acid with Weak Base
Week 14	Discussion for the experiments 6
Week 15	Discussion for the experiments 7

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry	No
Recommended Texts	Modern Analytical Chemistry.	No
Websites	https://tech.chemistrydocs.com/Books/Analytical/Analytical-Chemistry-by-Gary-D-Christian.pdf	

Grading Scheme				
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	مت,سط	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.