MODULE DESCRIPTION FORM

Module Information			
Module Title	**Analog and Digital Electronics**		**Module Delivery**
Module Type	**Basic**		☒Theory ☒Lecture ☒Lab
Module Code	**MPH23013**		
ECTS Credits	**7 ECTS**		
SWL (hr/sem)	**175**		
Module Level	UG II	**Semester of Delivery**	3ed Semester
Administering Department	MPY	**College**	College of Sciences
Module Leader	Saja Basim Ali	**e-mail**	Saja.b@uowa.edu.iq
Module Leader's Acad. Title	**Assistant Lecturer**	**Module Leader's Qualification**	M.S.C
Module Tutor	Saja Basim Ali	**e-mail**	Saja.b@uowa.edu.iq
Peer Reviewer Name	Ahmed Musa Jaafar Othman	**e-mail**	Ahmed.mo@uowa.edu.iq
Scientific Committee Approval Date	1 – 9 - 2025	**Version Number**	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 provide the student with the fundamental skills to understand the basics of semiconductors and components like diodes, transistor 2. to get experience and a fundamental comprehension of electronics. 3. The student will be able to perform the theoretical calculations necessary for analysis and design. 4. The course aims to study the basic principles of the operation of electronic circuits that contain electronic elements such as diodes of their types, transistors of their types, and methods of connection in terms of bias and arrangement. 5. the student will learn how to draw equivalent circuits for these electronic elements using different methods, 6. the student will learn how the differences between the approved methods so that the student can analyze electronic circuits. 7. To acquaint the students with the fundamental principles of two-valued logic and various devices to implement logical operations on variables. 8. Developing the student's abilities and practical skills to operate digital devices, and benefiting from them to increase individual productivity. 9. Introducing the student to the aspects of the digital electronics environment and the environment of the various devices attached to it. 10. Introducing the student to applications for multiple digital devices and information in the medical field.
Module Learning Outcomes	1. To give knowledge of some basic electronic components and circuits. 2. Identification of the structure of diode and transistor circuits. 3. Identification of NPN, PNP, JFET, and MOSFET amplifiers

	4. Able to identify and describe different analog modulation techniques 5. Describe and explain the operation of fundamental digital gates 6. Design and operate practical digital logic circuits 7. Use the basic logic gates and various digital logic circuit reduction techniques in detail. 8. Design combinational circuits. 9. Able to design and describe analog and digital logic circuits
Indicative Contents	) Theory Lectures Learning concepts of each theoretical lecture or groups of lectures. Lab. Lectures Learning concepts of each laboratory lecture or groups of lectures. Total hrs = ∑SSWL + (Mid Exam hrs+ Final Exam hrs)

Learning and Teaching Strategies	
Strategies	1. Lecture 2. Workshops 3. Laboratory sessions 4. Flipped classroom 5. Problem-based learning (PBL) 6. Peer teaching and collaborative learning 7. Reflective practice

Student Workload (SWL)			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	97	**Unstructured SWL (h/w)**	6.5
Total SWL (h/sem)	**175**		

Module Evaluation

		Time/Number		Weight (Marks)		Week Due	Relevant Learning Outcome
		TH	LAB	TH	LAB		
Formative assessment	Quizzes	2	2	4	10	5 and 11	3,7
	Homework assignment	2	1	4	10	6and 13	1,8
	Onsite Assignments	-	-	-	-	Continuous	All
	Projects	1	7	2	10	14	All
Summative assessment	Midterm Exam	1		10		7	
	Final Exam	3hr		50		15	
Total assessment				100 Marks			

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction, Insulators, conductors, semiconductors
Week 2	Intrinsic semiconductors, extrinsic semiconductors, PN-junction and applications
Week 3	Transistor, PNP, NPN, common emitter dc-analysis
Week 4	Biasing circuits, Common collector circuits, common base circuit
Week 5	FET, JFET, Output characteristic curves of JFET, JFET small signal parameters
Week 6	MOSFET
Week 7	Mid. Exam
Week 8	Introduction to digital electronics
Week 9	NUMBER SYSTEMS: Decimal & Binary system
Week 10	Binary Arithmetic
Week 11	Logic Gates and Logic Circuits
Week 12	Boolean Algebra
Week 13	Boolean Algebra and Logic Simplification
Week 14	Sequential Logic: Latches
Week 15	Flip-Flops

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Static characteristic of crystal diode
Week 2	Zener diode characteristic
Week 3	Light emitting diode characteristic
Week 4	Transistor common emitting npn
Week 5	Transistor common base npn
Week 6	Half wave rectifier
Week 7	Full wave rectifier
Week 8	Introduction to Gates digital electronics
Week 9	AND Gate
Week 10	OR Gate
Week 11	NOT Gate
Week 12	NAND Gate
Week 13	NOR Gate
Week 14	The Exclusive-OR Gate
Week 15	Exclusive-NOR Gate

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	ELECTRONIC PRINCIPLES, 8th Edition, 2016, McGraw-Hill Education.	No
Recommended Texts	Digital fundamentals Thomas, 11th Edition, 2015, Pearson Education.	No
Websites	https://www.talkingelectronics.com/Download/Malvino_Electronic-Principles.pdf	

Grading Scheme مخطط الدرجات				
Group	**Grade**	**Grade**	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	Fail	(45-49)	More work required but credit awarded
	F – Fail	Fail	(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	**Computer ||**			**Module Delivery**	
Module Type	**Supportive**			☒ **Lecture** ☒ **Practical**	
Module Code					
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	2		**Semester of Delivery**	1	
Administering Department	Medical Physics		**College**	College of Science	
Module Leader	Dr. Ali Kareem Abdul Raheem		**e-mail**	alialmujab@uowa.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD	
Module Tutor	Dr. Ali Kareem Abdul Raheem		**e-mail**	alialmujab@uowa.edu.iq	
Peer Reviewer Name	Karar Sadiq Mohsen		**e-mail**	karar.sadeq@uowa.edu.iq	
Scientific Committee Approval Date	2025-09-17		**Version Number**	V 1.0	

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

Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The primary goal of this module is to transition students from basic computer literacy to becoming **technologically competent and security-aware** users who understand advanced concepts like networking and modern IT challenges. Upon successful completion of this module, students will be able to: 1. **Analyze and Secure Systems:** Identify common network architectures, analyze security threats (**malware, phishing**), and apply foundational defensive measures like firewalls and strong authentication. 2. **Conduct E-Commerce Safely:** Differentiate between various electronic banking channels (**online, mobile, ATM**), verify transaction security protocols (**HTTPS, 2FA**), and engage in digital commerce with confidence. 3. **Perform Technical Troubleshooting:** Apply systematic methodologies to diagnose and resolve typical hardware and software errors, utilizing system utilities and data **backup** strategies. 4. **Grasp AI Fundamentals:** Define **Artificial Intelligence (AI)**, differentiate between key concepts (**ML, Deep Learning**), and recognize the role of AI in modern applications like virtual assistants and translation services. 5. **Evaluate Ethical and Societal Impact:** Critically analyze the **ethical challenges** posed by AI, including issues of **bias, privacy, and job displacement**, fostering a responsible perspective on emerging technologies.
Module Learning Outcomes	Upon successful completion of this module, the student will be able to: 1. **Differentiate Network Types:** Distinguish between **LAN, WAN, and MAN** and explain the function of core network components (**routers, switches**) in each. 2. **Apply Security Measures:** Identify common cyber threats (**phishing, malware**) and articulate how a **firewall** and **antivirus** software contribute to system defense. 3. **Perform Secure Access:** Explain and demonstrate the rationale and steps for using **Two-Factor Authentication (2FA)** and secure password practices. 4. **Verify Secure Transactions:** Identify the **HTTPS protocol** and the **SSL/TLS certificate** in a web browser to verify the security of an online banking transaction. 5. **Compare E-Banking Channels:** Contrast the functionalities and security features of **online banking, mobile banking, and ATM services**, including the technology behind **EMV chip** cards. 6. **Evaluate Digital Wallets:** Explain the concept of **Tokenization** and its role in securing payments made via **Digital Wallets** (e.g., Apple Pay, Google Pay). 7. **Systematically Diagnose Issues:** Implement a systematic troubleshooting cycle to diagnose whether a problem is **hardware or software** related. 8. **Utilize System Utilities:** Use operating system tools (**Task Manager, Activity Monitor, Disk Utility**) to analyze system resource consumption (**CPU, RAM**) and optimize performance. 9. **Implement Data Protection:** Differentiate between **backup** types (e.g., full vs. incremental) and configure a basic **system restore point** or backup plan. 10. **Define AI Concepts:** Accurately define and distinguish between the fields of **Artificial Intelligence, Machine Learning, and Deep Learning**. 11. **Identify Mobile AI Applications:** Explain how **Natural Language Processing (NLP)** and **Speech Recognition** enable the functionality of **Virtual Assistants** (e.g., Siri, Alexa) and **Real-Time Translation**. 12. **Analyze AI Applications:** Provide examples of how AI is used for **predictive modeling** in diverse sectors such as healthcare, finance (**fraud detection**), and

	autonomous transportation. 13. **Assess Ethical Implications:** Critically evaluate the ethical implications of AI, specifically addressing issues of **Algorithmic Bias, data privacy, and the societal impact of automation and job displacement.**
Indicative Contents	• **Network Fundamentals:** Definition of a computer network (LAN, WAN, MAN). Basic components (router, switch, NIC). Addressing and identification (IP vs. MAC address). • **Cybersecurity Basics:** The CIA triad (Confidentiality, Integrity, Availability). Common threats (Malware, Viruses, Phishing, DoS). Role of firewalls and antivirus software. • **E-Commerce and E-Banking:** Concepts of electronic banking. Functions and security of **ATM and Debit/Credit Card** services (EMV chip technology). Features of **Online Banking** and **Mobile Banking**. Security protocols (**HTTPS, SSL/TLS, 2FA**). • **Troubleshooting Methodology:** The systematic cycle for problem solving (Identify, Diagnose, Fix, Verify). Differentiating between hardware and software failures. • **Diagnostic Tools:** Use of OS utilities (**Task Manager/Activity Monitor**) to analyze resource consumption (CPU, RAM). Disk management and optimization. • **Data Protection and Recovery:** Importance of **backup** and different backup strategies. Creating and utilizing **System Restore Points**. Managing and updating device **Drivers**. • **Introduction to AI:** Definition, history (Turing Test), and core concepts. Distinctions between **AI, Machine Learning (ML), and Deep Learning**. The role of data sets and algorithms. • **AI in Mobility:** Principles of **Virtual Assistants** (Siri, Alexa). Technologies: **Natural Language Processing (NLP)** and **Speech Recognition**. Adaptive learning and recommendation systems. • **Ethical Foundation:** Introduction to core ethical issues: **bias, accountability, and transparency** in AI systems. • **AI Applications:** Use cases across major industries: Healthcare (diagnosis, drug discovery), Finance (**Fraud Detection, Algorithmic Trading**), Transportation (**Autonomous Vehicles**), and Marketing. • **Robotics and Automation:** Concepts of **Robotics** and **Process Automation** (Chatbots). • **AI and Society:** Societal and economic impact of AI (**Job Displacement, Digital Divide**). Analysis of privacy and **surveillance** issues. • **Future Trends:** Emerging technologies such as **Explainable AI (XAI)**, **Quantum Computing**, and **Reinforcement Learning**.

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)			
Structured SWL (h/sem)	45	**Structured SWL (h/w)**	3
Unstructured SWL (h/sem)	**30**	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	**72 + 3 final = 75**		

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

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	**Security and Networking: Definition of a network; Types of networks; Basic network components.**
Week 2	**Security and Networking (Cont.): Network Security Basics; Understanding network threats.**
Week 3	**E-Commerce: Concepts of Electronic banking services including online banking, ATM, debit card services, Phone banking, SMS banking, electronic alert, Mobile banking.**
Week 4	**Computer Troubleshooting: Identifying and solving common hardware and software problems that computer users encounter.**
Week 5	**Computer Troubleshooting (Cont.): Basic troubleshooting techniques and tools for diagnosing and resolving issues.**
Week 6	**Introduction to AI: Definition of AI; History of AI; AI Techniques and Approaches.**
Week 7	**Introduction to AI (Cont.): Key Characteristics of AI; Benefits of AI; Challenges and Ethical considerations.**
Week 8	**The Role of AI in Modern Smartphones: AI-Driven Mobile Technologies; Virtual Assistants (Siri, Google Assistant, Alexa).**
Week 9	**The Role of AI in Modern Smartphones (Cont.): Adaptive Learning; Real-Time Translation Services.**
Week 10	**Applications and Tools of AI: Overview of AI Applications in various Industries (Education and Healthcare).**
Week 11	**Applications and Tools of AI (Cont.): Overview of AI Applications (Transportation, Marketing and Advertising).**
Week 12	**Applications and Tools of AI (Cont.): Overview of AI Applications (Finance, Robotics and Automation Technologies).**
Week 13	**AI and Society: How AI affects social and international relations; AI and the future of humanity.**
Week 14	**Ethical Challenges in AI: AI ethics; privacy and surveillance; the impact of AI on the job market.**
Week 15	**The Future of AI: Future trends in AI; recent research and emerging technologies.**

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	• Graham Brown, David Watson, **"Cambridge IGCSE Information and Communication Technology"**, 3rd Edition (2020). • Alan Evans, Kendall Martin, Mary Anne Poatsy, **"Technology In Action Complete"**, 16th Edition (2020).	No
Recommended Texts	• Ahmed Banafa, **"Introduction to Artificial Intelligence (AI)"**, 1st Edition (2024).	No
Websites	Google AI (مبادرة الذكاء الاصطناعي من جوجل)	

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.

Ministry of Higher Education and Scientific Research - Iraq
University of Warith Al-Anbiyaa
College of Sciences
Department of Medical Physics

MODULE DESCRIPTOR FORM

Module Information					
Module Title	Crimes of the defunct Baath Party			**Module Delivery**	
Module Type	S SUPPORTIVE			**Theory** ☐	
Module Code	UOWA102			**Seminar** ☐	
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	UG 2	**Semester of Delivery**	1		
Administering Department	Medical Physics		College of Science		
Module Leader	Abbas Taher Jari	**e-mail**	Abbas.taher@uowa.edu.iq		
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master		
Module Tutor	Abbas Taher Jari	**e-mail**	-Abbas.taher@uowa.edu.iq		
Peer Reviewer Name	Haider Mohammed Ali Al-Ghanmi	**e-mail**	hayder.alghananmi@uowa.edu.iq		
Review Committee Approval	2025 - 9 – 1	**Version Number**	1		

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

Relation With Other Modules			
Prerequisite module	None	**Semester**	-
Co-requisites module	None	**Semester**	-
Module Aims, Learning Outcomes and Indicative Contents			
Module Aims	• Understanding the concept of crime and its elements • Identifying international and local laws that criminalize the actions committed by the Ba'ath regime in Iraq • Exploring the most prominent cases and crimes reviewed by the Iraqi High Criminal Court and the scale of those crimes • Examining the psychological and social effects on the personality of the citizen, and the resulting scientific and cultural impoverishment • Investigating the environmental impacts, including the decline in public health due to war remnants and the draining of the marshes • Identifying the mass graves left by the Ba'ath regime, including the location and time of each grave		

Module Learning Outcomes	1. Understanding the definition of crime, its interpretations in other sciences, and its classifications 2. Identifying the most prominent cases handled by the Iraqi High Criminal Court, the verdicts issued against the convicted individuals, and the laws under which death sentences were issued against members of the Ba'ath regime. 3. Examining the negative impacts and methods used in militarizing society. 4. Recalling the most notable religious figures who were persecuted and arrested due to their opposition to the Ba'ath regime. 5. Recognizing major political violations and raising public awareness about the Ba'ath regime's abuses and their impact on Iraqi society 6. Shedding light on secret prisons and special detention centers used to imprison opponents of the Ba'ath regime. 7. Highlighting the major environmental violations committed by the Ba'ath regime in Iraq. 8. Explaining and detailing the main areas of radioactive contamination, and how the regime employed a scorched-earth policy against villages and cities. 9. Clarifying the process of draining the marshes in southern Iraq and the bulldozing of orchards and palm groves following the Shaaban uprising in 1991 10. Documenting the mass graves committed by the Ba'ath regime. 11. Explaining the events of 1963 and the accompanying killings targeting the regime of Abdul Karim Qasim, and their connection to mass graves 12. Classifying the mass graves during the Iran-Iraq war and the events of the Anfal massacre in 1987–1988 13. Identifying the documents of the 1991 Shaaban uprising, and the mass graves committed by the Ba'ath regime against its participants after suppressing the uprising 14. Listing the mass graves according to their dates from 1963 until the fall of the regime in 2003, including: • The Barzani Kurds' grave in 1983 • The Anfal massacre graves from 1987–1988 • The victims of the 1991 Shaaban uprising

Indicative Contents	1. **The Concept of Crime and Its Classifications** (3 hours) 2. **Crimes of the Ba'ath Regime According to the Documentation of the Iraqi High Criminal Court Law of 2005** (2 hours) 3. **Rulings Issued by the Iraqi High Criminal Court** (2 hours) 4. **Psychological and Social Crimes and Their Effects** (2 hours) 5. **Militarization of Society** (2 hours) 6. **The Ba'ath Regime's Stance on Religion and Its Violations of Iraqi Laws** (2 hours) 7. **Forms of Human Rights Violations and Crimes of Authority** (2 hours) 8. **Selected Political and Military Violation Rulings of the Ba'ath Regime** (2 hours) 9. **Environmental Crimes Committed by the Ba'ath Regime in Iraq** (2 hours) 10. **War and Radioactive Pollution, Landmine Explosions, and the Destruction of Cities and Villages** (3 hours) 11. **Draining of the Marshes in Southern Iraq and Bulldozing of Orchards and Crops** (2 hours) 12. **Mass Grave Crimes** (2 hours) 13. **Genocidal Mass Grave Events Committed by the Ba'ath Regime in Iraq** (2 hours) 14. **Chronological Classification of Genocidal Mass Graves in Iraq from 1963 to 2003** (2 hours)
Learning and Teaching Strategies	
Strategies	- **Interactive Lecture** - **Brainstorming** - **Dialogue and Discussion** - **Self-Directed Learning** -

Student Workload (SWL)			
Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2.2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1.1
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	12	3,7	all
	Assignments	2	12	9,11	all
	Assignments in College	1	6	5	all
	Seminar	1	10	10	all
Summative assessment	Midterm Exam	1	10	7	1-6
	Final Exam	1	50	16	all
Total assessment			100		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Concept of Crimes and Their Classification
Week 2	-Crimes of the Ba'ath Regime According to the Iraqi High Criminal Court Law of 2005
Week 3	-Crimes of the Ba'ath Regime According to the Iraqi High Criminal Court Law of 2005
Week 4	Mechanisms of Psychological Crimes
Week 5	Militarization of Society
Week 6	The Ba'ath Regime's Stance on Religion
Week 7	Midterm Examination
Week 8	-Violations of Iraqi Laws
Week 9	Environmental Crimes of the Ba'ath Regime in Iraq
Week 10	-Draining of the Marshes and Bulldozing of Orchards and Crops
Week 11	Mass Grave Crimes
Week 12	Events of Genocidal Mass Graves Committed by the Ba'ath Regime in Iraq
Week 13-14	-Chronological Classification of Mass Graves and Genocides in Iraq (1963–2003
Week 15	-Genocidal Mass Graves Committed by the Defunct Ba'ath Regime(2003–1979)
Week 16	**Final Exam**

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	1-جرائم نظام حزب البعث(منهاج وزاري) 2- د. احمد خالد عبد القادر, حرب الابادة الجماعية ضد الشعب العراقي والقانون الدولي المعاصر . 3-د. حمدي ابو النجا ,مخاطر التلوث البيئي.	yes
Recommended Texts	1-مجلة حقوق الانسان والحريات العامة. انطونيو كاسيزي ,القانون الجنائي الدولي .	yes
Websites	المركز العراقي لتوثيق جرائم التطرف https://iraqicenter-fdec.org/archives/5146	

APPENDIX:

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

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

MODULE DESCRIPTION FORM

Module Information			
Module Title	Heat and Thermodynamics	**Module Delivery**	
Module Type	Basic		
Module Code	MPH2021	☒Theroy Lab	
ECTS Credits	7		
SWL (hr/sem)	175		

Module Level	2	**Semester of Delivery**	1
Administering Department	Information Technology	**College**	College of Science
Module Leader	Alhanouf Salam Shakir	**e-mail**	alhanoof.salam@uowa.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	M.S.C
Module Tutor	Alhanouf Salam Shakir	**e-mail**	alhanoof.salam@uowa.edu.iq
Peer Reviewer Name	Ismail Mohammed Al-Dessouki	**e-mail**	Ismail.M@uowa.edu.iq
Scientific Committee Approval Date	1 – 9 -2025	**Version Number**	V1.0

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

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Providing the student with knowledge of the system and laws of thermodynamics. 2. Providing the student with knowledge of heat, temperature, and heat capacity. 3. Providing the student with knowledge of temperature measurement methods and systems. 4. Providing the student with knowledge of the relationship between types of heat capacities and how to measure and calculate them. 5. Providing the student with knowledge of the three laws of thermodynamics. 6. Providing the student with knowledge of the methods and laws of heat transfer. 7. Providing the student with knowledge in the operation of the refrigerator and heat pump. 8. Providing the student with knowledge of the various gas laws and the ideal gas. 9. Providing the student with experience in energy conversions.
Module Learning Outcomes	Important: Write at least 6 Learning Outcomes, better to be equal to 10. 1. Introducing the student to the distinction between the properties of different gases and the laws that govern the relationships between them. 2. Introducing the student to the factors affecting the behavior of gases. 3. Introducing the student to the possibility of converting matter into energy. 4. Introducing the student to the operations that can be performed on different gases. 5. Introducing the student to temperature scales and how to convert between them.
Indicative Contents	Learning concepts of each theoretical lecture or groups of lectures. [SSWL= 28hrs] Lab. Lectures Learning concepts of each laboratory lecture or groups of lectures. [SSWL=30 hrs] Mid Exam =1hrs Final Exam =3hrs Total hrs = 62

Learning and Teaching Strategies	
Strategies	1- General and qualifying transferable skills (other skills related to employability and personal development). 2- The ability to analyze, deduce and describe. 3- To understand and comprehend the laws of energy conversion and transfer. 4- Providing scientific material that relates to the scope of their work and is specialized as a medical physics department.se the strategy from the attached word file.

Student Workload (SWL)			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	97	**Unstructured SWL (h/w)**	6.5
Total SWL (h/sem)	175		

Module Evaluation								
		Time/Number		**Weight (Marks)**		**Week Due**	**Relevant Learning Outcome**
		TH	LAB	TH	LAB		
Formative assessment	**Quizzes**	2	2	4	10	4,8	1,2,3,4,5,6,7
	Homework assignment	2	1	4	10	6,10	All
	Onsite Assignments	-	-	-	-	-	-
	Projects	1	7	2	10	14	All
Summative assessment	**Midterm Exam**	1		10		7	
	Final Exam	3hr		50		15	
Total assessment				100 Marks			

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Thermodynamics and Thermodynamic Concepts
Week 2	Behavior of Gases, Ideal and real gas
Week 3	Zeroth Law of Thermodynamics, Temperature and Temperature scales
Week 4	First Law of Thermodynamics
Week 5	Heat capacities of Ideal gas
Week 6	Heat Engines and second law of thermodynamic
Week 7	Mid. Exam
Week 8	Heat Pumps
Week 9	The Carnot Engine, Internal Combustion engine
Week 10	Entropy and Second Law of Thermodynamics
Week 11	Entropy and Performance of Heat Engines
Week 12	Third Law of Thermodynamics
Week 13	Maxwell's Relations, Cyclic rule, Applications of Maxwell's Relations
Week 14	Phase Transitions
Week 15	**First order phase changes**

Delivery Plan (Weekly Lab Syllabus)	
	Material Covered
Week 1	Find heat capacity of calorimeter
Week 2	Find volumetric expansion coefficient of liquid
Week 3	Find longitudinal expansion coefficient of metal
Week 4	Joule equivalent
Week 5	Find the latent temperature of melt ice
Week 6	Find specific heat of rigid body
Week 7	Find energy by using current and voltage
Week 8	Find heat capacity of calorimeter
Week 9	Find volumetric expansion coefficient of liquid
Week 10	Find longitudinal expansion coefficient of metal
Week 11	Joule equivalent
Week 12	Find the latent temperature of melt ice

Week 13	Find specific heat of rigid body
Week 14	Find energy by using current and voltage
Week 15	Find energy by using current and voltage

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Fundamentals of 1. Thermodynamics, by claus borgnakke Richard e. Sonntag	
Recommended Texts	Thermodynamics: Principles and Applications, by Frank C. AndrewsYear, Publisher.n,	
Websites	https://www.google.iq/books/edition/Thermodynamics_Principles_and_Applicatio/LOZpxJH0HeMC?hl=en&gbpv=1&bsq=thermodynamics+principles+and+applications+by+frank&dq=thermodynamics+principles+and+applications+by+frank&printsec=frontcover	

Grading Scheme

Group	Grade	Greate	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	Fail	(45-49)	More work required but credit awarded
	F – Fail	Fail	(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 DESCRIPTOR FORM

Module Information					
Module Title	MEDICAL TERMINOLOGY			**Module Delivery**	
Module Type	CORE				
Module Code	MPH2203				
ECTS Credits	5 ECTS				
SWL (hr/sem)	125				
Module Level	2		**Semester of Delivery**	1	
Administering Department	MPH		**College**	College of Sciences	
Module Leader	Dhurgham Adel Obeid		**e-mail**	dirgham.ad@uowa.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	M.S.C	
Module Tutor	Durgham Adel Obeid		**e-mail**	dirgham.ad@uowa.edu.iq	
Peer Reviewer ame	Zainab Abdul Ilah Abbas		**e-mail**	zaineb.a@uowa.edu.iq	
Review Committee Approval	1 – 9 - 2025		**Version Number**	1.0	

Relation With Other Modules			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	Upon the end of this course, the student will be able to: 1. Know the four elements of the medical terms, how to distinguish between them and rules for their plural and singular endings. 2. Provide students with skills to pronounce and write the explanation of medical terms, concentrating on the suffixes and prefixes of them. 3. Learn about the levels of body organization and know the body systems and how to pronounce and spell them. 4. Name the main parts or components of human body systems. 5. Identify and interpret selected abbreviations related to each system when necessary. 6. Support the students' knowledge with the most important terms in relation to medical physics as used in the profession related to medical physics in hospitals and clinical practice, concentrating on: Radiation Types, Radioactivity, Radiation Interactions. 7. Be in acquaintance with terms and units of the dose measurement. 8. Distinguish among the terms used to identify the Respiratory System, Cardiovascular System, Skeletal System + Muscular System, Unary System, Digestive System and Reproductive System.
Module Learning Outcomes	1. Break down complex medical terms into their component parts (prefixes, roots, suffixes). 2. Define or explain medical terms accurately 3. Apply medical terms in written and oral communication in a healthcare context. 4. Interpret medical documentation and literature. 5. The student can write a case study 6. The students will be able to identify different anatomical structure within human body. 7. The students will be able to identify different physical terms related to medical applications.
Indicative Contents	This course is elaborated within 15 weeks including a mid-exam. It commences with introductory lecture about the analyzing and building the medical terminology. The explanation is followed by some exercises to be implemented by the students and a quiz to evaluate the students' comprehension in this regard. In the later weeks, a concentration on the types, names and components of human body systems. The lecturer adjusts the students' pronunciation of the related terms, spelling and position within human body organs. The focus is on the most important divisions required while doing the proficient related to medical physics. The course ends with lectures handle terminology required in medical physics, especially in radiation. Finally, the weeks follow focus on different physical term used in medical applications of physics such as; Biological Effects of Radiation, Radiation Physics terms and dosimetry terms.

Learning and Teaching Strategies	
Strategies	The lecturer follows the following strategies while teaching this course and as follows: **1- Lectures** **2- Interactive Workshops** **3- Group Discussions** **4- Assessments and Quizzes** **5- Writing Assignments** **6- Feedback and Reflection**

Student Workload (SWL)			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	62	**Unstructured SWL (h/w)**	4.1
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10	3,7	1,2
	Homework assignment	1	5	14	All
	Onsite Assignments	1	5	11	All
	Projects	1	10	12	5,6
	Lab Report	1	10	4,8	All
Summative assessment	**Midterm Exam**	1	10	8	
	Final Exam	3	50	16	
Total assessment			100 Marks		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to medical terminology; Medical Word Elements
Week 2	Exercises on building and analyzing medical terms.
Week 3	Body structure: Levels of Organization. Body Systems: Integumentary System
Week 4	Body Systems: Respiratory System + Cardiovascular System
Week 5	Body Systems: Skeletal System + Muscular System
Week 6	Body Systems: Unary System + Digestive System
Week 7	Body Systems: Reproductive System
Week 8	Mid. Exam
Week 9	Body Systems: Endocrine System
Week 10	Body Systems: Lymphatic System
Week 11	Body Systems: Nervous System+ Special Senses of Sight and Hearing
Week 12	Radiation Physics terms: Radiation Types, Radioactivity, Radiation Interactions
Week 13	Therapeutic physics terms
Week 14	Dosimetry term: Dose Measurement (Dosimeters, Units of Measurement)
Week 15	Biological Effects of Radiation: Cellular Effects, Acute and Chronic Effects, Dose-Response Relationships
Week 16	Final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Chabner, Davi-Ellen. *(2022) Medical Terminology: A Short Course-E-Book:* Elsevier Health Sciences. - Collins, C. Edward and DePetris, Ann, (2011), A Short Course inMedical Terminology (2nd edition), Walters Kluwer| Lippincott Williams & Wilkins: USA -	No
Recommended Texts	Gylys, B.A. and Wedding, M.E., 2017. *Medical terminology systems: a body systems approach*. FA Davis Ciompany. USA. -	No
Websites	75 Must-Know Medical Terms, Abbreviations, and Acronyms | SGU -1 https://www.sgu.edu/blog/medical/medical-terms-abbreviations-and-acronyms/ -2 https://medicalphysics.org/SimpleCMS.php?content=glossary.html -3	

APPENDIX:

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

MODULE DESCRIPTION FORM

Module Information					
Module Title	Optics			**Module Delivery**	
Module Type	**Core**			☒**Lecture**	
Module Code	**MPH2022**			☒**Lab**	
ECTS Credits	**6**			☒**Practical**	
SWL (hr/sem)	**150**				
Module Level	2		**Semester of Delivery**	1	
Administering Department	MPH		**College**	College of Science	
Module Leader	**Hikmat Adnan Jawad**		**e-mail**	hikmatadnan@gmail.com	
Module Leader's Acad. Title	Assistant Professor Dr		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Ali Nazem Munaf		**e-mail**	Ali.n@uowa.edu.iq	
Peer Reviewer Name	**Ahmed Mousa Jaafar**		**e-mail**	Ahmed.mo@uowa.edu.iq	
Scientific Committee Approval Date	1 – 9 - 2025		**Version Number**	1.0	

Relation with other Modules			
Prerequisite module	-	**Semester**	1
Co-requisites module	-	**Semester**	1

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1- Identify the meaning of optics. 2- Identify the refractive index, optical path, critical angle, total internal reflection, 3- medical applications of light, as well as defining interference, diffraction, and polarization. 4- Determine the importance of light in the medical field. 5- Identify thin and thick lenses and study image formation. 6- Study the tools related to these phenomena and determine the components of the images formed. 7- Studying optical devices, focusing on the human eye, and paying attention to visual defects. 8- Learn about the diffraction experiment, Newton's rings, Lloyd's mirror. 9- Fraunhofer diffraction, Fresnel diffraction, and prism diffraction.
Module Learning Outcomes	1- Know about the Nature and propagation of light, And electromagnetic spectrum 2- Know about the Optical path of light in the optical mediums and Reflection And low. 3. Know about the refraction at spherical surface. 4. Know about the Critical angle, total internal reflection and Dispersion of light 5- Know about the Mirrors and Magnification of images in mirrors 6- Study the most important optical devices that can be used during their employment. 7- Learn about the diffraction experiment. 8 - Study thin Lenses and Lens maker's equation. 9- Providing scientific material that relates to the scope of their work and is specialized as a medical physics department.
Indicative Contents	Theory Lectures Learning concepts of each theoretical lecture or groups of lectures. Lab. Lectures Learning concepts of each laboratory lecture or groups of lectures. Mid Exam = 1hrs Final Exam =3hrs

Learning and Teaching Strategies	
Strategies	1. Lecture 2. Workshops 3. Laboratory sessions 4. Flipped classroom 5. Problem-based learning (PBL) 6. Peer teaching and collaborative learning 7. Reflective practice

Student Workload (SWL)			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	4.8
Total SWL (h/sem)	150		

Module Evaluation								
		Time/Number		Weight (Marks)		Week Due	Relevant Learning Outcome
		TH	LAB	TH	LAB		
Formative assessment	Quizzes	2	2	4	10	5 and 11	3,9
	Homework assignment	2	1	4	10	6and 13	1,8
	Onsite Assignments	-	-	-	-	-	-
	Projects	1	7	2	10	14	All
Summative assessment	Midterm Exam	1		10		7	
	Final Exam	3hr		50		15	
Total assessment				100 Marks			

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Nature and propagation of light, And electromagnetic spectrum.
Week 2	Optical path of light in the optical mediums and Reflection
Week 3	Optical path of light in the optical mediums and Reflection
Week 4	Critical angle , total internal reflection and Dispersion of light
Week 5	Mirrors and Magnification of images in mirrors
Week 6	Thin Lenses and Lens maker's equation
Week 7	Mid. Exam
Week 8	Compound lenses and equivalent focal length
Week 9	Optical Devices, The eye, defect of visions,
Week 10	The Human Visual System, eye diseases.
Week 11	Transverse wave, The wave equation in the medium , Superposition of Waves and Coherent and incoherent sources, Relation between Phase Difference and Path Difference
Week 12	thin film, HOLOGRAPHIC TECHNOLOGY, Interference phenomena, Young's Experiment and Intensity Distribution in the Young's Experiment.
Week 13	Diffraction Phenomena and types of diffractions ,Fraunhofer diffraction and Single Slit Diffraction (Fraunhofer Diffraction)
Week 14	Double-Slit Diffraction Pattern and Diffraction
Week 15	Grating and Dispersion power of grating and Resolving Power.

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Finding the focal length of a convex lens

Week 2	Measurement of diameter of wire using laser diffraction
Week 3	Measurement the refractive index of a liquid by refractometer
Week 4	Laser Diffraction
Week 5	Find the refractive index for prism using spectrometer
Week 6	Polarimeter
Week 7	Find the focal length for a concave lens by using convex lens
Week 8	find the specific rotation of sugar solution by using a polarimeter and sugar solutions of different concentrations.
Week 9	measurement of the wavelength of monochromatic light using the laser.
Week 10	Study solution concentration using Beer – Lamber.
Week 11	Brewster angle measurement.
Week 12	Study the phenomenon of diffraction via grating.
Week 13	find the focal length for a concave lens.
Week 14	Laser Diffraction
Week 15	Finding the focal length of a convex lens
Week16	Final Exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Fundamental of Optics, by Jenkins and White	No
Recommended Texts	Introduction to Modern optics, by Grant R. Fowlles Optics, by Miles and Thomas ear, Publisher.	No
Websites	https://phet.colorado.edu/ar_SA/ https://michaelbach.de/ot/ https://science.nasa.gov/ems/09_visiblelight https://w3.aapm.org/media/index.php https://phet.colorado.edu/sims/html/geometric-optics/latest/geometric-optics_all.html?locale=ar_SA	

Grading Scheme				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
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