وزارة التعليم العالي والبحث العلمي جهاز
الاشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الالكاديمي
قسم الاعتماد

دليل وصف البرنامج الأكاديمي والمقرر

٢٠٢٤

المقدمة:

يُعد البرنامج التعليمي بمثابة حزمة منسقة ومنظمة من المقررات الدراسية التي تشتمل على إجراءات وخبرات تنظم بشكل مفردات دراسية الغرض الأساس منها بناء وصقل مهارات الخريجين مما يجعلهم مؤهلين لتلبية متطلبات سوق العمل يتم مراجعته وتقييمه سنوياً عبر إجراءات وبرامج التدقيق الداخلي أو الخارجي مثل برنامج الممتحن الخارجي.

يقدم وصف البرنامج الأكاديمي ملخص موجز للسمات الرئيسة للبرنامج ومقرراته مبيناً المهارات التي يتم العمل على اكسابها للطلبة مبنية على وفق اهداف البرنامج الأكاديمي وتتجلى أهمية هذا الوصف لكونه يمثل الحجر الأساس في الحصول على الاعتماد البرامجي ويشترك في كتابته الملاكات التدريسية بإشراف اللجان العلمية في الأقسام العلمية.

ويتضمن هذا الدليل بنسخته الثانية وصفاً للبرنامج الأكاديمي بعد تحديث مفردات وفقرات الدليل السابق في ضوء مستجدات وتطورات النظام التعليمي في العراق والذي تضمن وصف البرنامج الأكاديمي بشكلها التقليدي نظام (سنوي، فصلي) فضلاً عن اعتماد وصف البرنامج الأكاديمي المعمم بموجب كتاب دائرة الدراسات ت م٢٩٠٦/٣ في ٢٠٢٣/٥/٣ فيما يخص البرامج التي تعتمد مسار بولونيا أساساً لعملها.

وفي هذا المجال لا يسعنا إلا أن نؤكد على أهمية كتابة وصف البرامج الاكاديمية والمقررات الدراسية لضمان حسن سير العملية التعليمية.

مفاهيم ومصطلحات:

وصف البرنامج الأكاديمي: يوفر وصف البرنامج الأكاديمي ايجازاً مقتضباً لرؤيته ورسالته وأهدافه متضمناً وصفاً دقيقاً لمخرجات التعلم المستهدفة على وفق استراتيجيات تعلم محددة.

وصف المقرر: يوفر إيجازاً مقتضياً لأهم خصائص المقرر ومخرجات التعلم المتوقعة من الطالب تحقيقها مبرهناً عما إذا كان قد حقق الاستفادة القصوى من فرص التعلم المتاحة. ويكون مشتق من وصف البرنامج.

رؤية البرنامج: صورة طموحة لمستقبل البرنامج الأكاديمي ليكون برنامجاً متطوراً وملهماً ومحفزاً وواقعياً وقابلاً للتطبيق.

رسالة البرنامج: توضح الأهداف والأنشطة اللازمة لتحقيقها بشكل موجز كما يحدد مسارات تطور البرنامج واتجاهاته.

اهداف البرنامج: هي عبارات تصف ما ينوي البرنامج الأكاديمي تحقيقه خلال فترة زمنية محددة وتكون قابلة للقياس والملاحظة.

هيكلية المنهج: كافة المقررات الدراسية / المواد الدراسية التي يتضمنها البرنامج الأكاديمي على وفق نظام التعلم المعتمد (فصلي، سنوي، مسار بولونيا) سواء كانت متطلب (وزارة، جامعة، كلية وقسم علمي) مع عدد الوحدات الدراسية.

مخرجات التعلم: مجموعة متوافقة من المعارف والمهارات والقيم التي اكتسبها الطالب بعد انتهاء البرنامج الأكاديمي بنجاح ويجب أن يُحدد مخرجات التعلم لكل مقرر بالشكل الذي يحقق اهداف البرنامج.

استراتيجيات التعليم والتعلم: بأنها الاستراتيجيات المستخدمة من قبل عضو هيئة التدريس لتطوير تعليم وتعلم الطالب وهي خطط يتم إتباعها للوصول إلى أهداف التعلم. أي تصف جميع الأنشطة الصفية واللاصفية لتحقيق نتائج التعلم للبرنامج.

Academic Program Description Form

University Name: University OF Babylon

Faculty /institute: college of engineering

Scientific Department: Department of Biomedical Engineering

Academic or professional program Name: Academic program

Final certificate Name: Bachelor's degree in Biomedical Engineering

Academic system: ABET

Description preparation Date:

File completion Date

Signature Dr. Fawaz Al-Bakri

Head of Department name:

Date 26/05/2025

Signature

scientific Associate Name

Date 28/05/2025

The file is checked by:

Department of Quality Assurance and University Performance Dr. Zainab Ali Omran

Director of Quality Assuranc formance Department

Date:

Signature:

Approval of the Dean

LEVEL: UGI

MODULE (1) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electrical Circuits I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10101**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level	UGI		**Semester of Delivery**	One	
Administering Department	Biomedical Eng.		**College**	College of Engineering	
Module Leader	Akram Jaddoa Khalaf		**e-mail**	eng.akram@uobabylon.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Akram Jaddoa Khalaf		**e-mail**	eng.akram@uobabylon.edu.iq	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To understand the basic subjects of DC-electrical circuits 2. To develop problem-solving skills and an understanding of DC-circuit theories through the applications. 3. To understand current and voltage from DC-Circuit. 4. To understand Ohm's law. 5. To simplify the resistances network. 6. To understand Kirchhoff's current and voltage Laws. 7. To perform mesh and Nodal analysis. 8. To understand Thevenin's Theorem and Norton's Theorem 9. To understand the Maximum Power Transfer for DC-electrical circuits. 10. To perform First Order RC Circuits. 11. To understand First Order RL Circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. List the various terms associated with DC- circuits. 2. Describe the reaction and involvement of atoms. 3. Discuss electrical charge, and current for DC- circuits. 4. Identify the basic circuit elements and their applications. 5. Describe the resistance and the resistance temperature effects. 6. Discuss the concept of Ohm's law. 7. Recognize the equivalate resistance. 8. Analyze the DC circuit using Kirchoff's current and voltage laws. 9. Analyze the DC circuits based on mesh and Nodal analysis. 10. Analyze the DC circuits using Superposition and Source Transformation 11. Analyze the DC circuits Thevenin's Theorem and Norton's Theorem. 12. Analyze the First Order RC and RL circuits.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. The Structure of Matter, Concept of Charge and Current, Concept of Electric Potential, Resistance, Conductance, Effect of Temperature on Resistance (Resistance Temperature Coefficient), Fundamental Quantities, and Units [10 hrs.] DC Principles-Network Terminology, Ohm's Law, series-parallel DC networks, voltage-divider and current-divider circuits, star-delta, and delta-star circuits conversion. [10 hrs.] Energy Voltage and Current Sources (Ideal- Practical, Time invariant Sources- Time Variant Source, Dependent - Independent Sources), Double and Single Subscript Notation. [10 hrs.] Kirchhoff's (current and voltage) Laws, Solving Simultaneous Equations, and Cramer's Rule. [15 hrs] DC- Methods of Analysis-Nodal Analysis, Nodal Analysis with Voltage Sources. [10 hrs.] DC- Methods of Analysis-Mesh Analysis Method, Mesh Analysis with Current Sources. [10 hrs.] DC- Circuit Theorems- Superposition, Linearity Property, Source Transformation. [10 hrs.]

	Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer. [16 hrs.] Capacitors- Series and Parallel Capacitors, First Order RC Circuit (Source-Free and Step Response). [8 hrs.] Inductors: Series and Parallel Inductors, First Order RL Circuit (Source-Free and Step Response). [8 hrs.]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The major approach used to offer this module will be to promote student engagement in the activities while also enhancing and broadening their critical thinking abilities. This will be accomplished through lectures, interactive tutorials, and taking into account the kinds of straightforward experiments with some sampling activities that the students will find fascinating.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسيالمنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	132	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 12	LO #1-6, 10, and 11
	Assignments	2	10% (10)	3, 11	LO # 3, 4, 6 and 7
	Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hrs.	10% (10)	8	LO # 1-9
	Final Exam	3 hrs.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Concepts for Electrical Circuits.
Week 2	Basics of Network Elements Resistance and Resistivity.
Week 3	Effect of Temperature on Resistance.
Week 4	Basic Laws - Ohm's Law , Series and Parallel Resistors, WYE-DELTA Transformations.
Week 5	Kirchhoff's Laws and Energy Sources
Week 6	Methods of Analysis: Nodal Analysis
Week 7	Methods of Analysis: Mesh Analysis, Circuit Theorems: Superposition.
Week 8	Midterm Exam + Circuit Theorems: Source Transformation
Week 9	Circuit Theorems: Thevenin's Theorem
Week 10	Circuit Theorems: Norton's Theorem
Week 11	Circuit Theorems: Maximum Power Transfer
Week 12	Capacitors: Series and Parallel Capacitors
Week 13	First Order RC Circuit
Week 14	Inductors: Series and Parallel Inductors
Week 15	First Order RL Circuit
Week 16	**A Preparatory Week Before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Electrical Circuit Measurements
Week 2	Lab 2: Resistor Code
Week 3	Lab 3: Ohm's law
Week 4	Lab 4: Kirchhoff's Laws
Week 5	Lab 5: Nodal Analysis (part1)
Week 6	Lab 6: Nodal Analysis (part2)
Week 7	Lab 7: Mesh Analysis (part1)
Week 8	Lab 8: Mesh Analysis (part2)
Week 9	Lab 9: Superposition Theorem

Week 10	Lab 10: Thevenin's Theorem (part1)
Week 11	Lab 11: Thevenin's Theorem (part2)
Week 12	Lab 12: Maximum Power Transfer(part1)
Week 13	Lab 13: Maximum Power Transfer(part2)
Week 14	Lab 14: RC Circuit.
Week 15	Lab 15: RL Circuit.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Textbook	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education.	Yes
Recommended Texts	ELECTRIC CIRCUITS, J. W. Nilsson and S. A. Riedel, Pearson Education Limited.	Yes
Websites	https://library.iitp.ac.in/images/btech_ebook/Fundementals%20of%20Electric%20Circuits%20by%20Alexander%20and%20Sadiku.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work is required but credit awarded
	F – Fail	راسب	(0-44)	A 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 (2) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	Supplementary			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10102**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	one	
Administering Department	Biomedical Engineering		**College**	Engineering college	
Module Leader	Wadhah falah ali		**e-mail**	Wadahali78@gmail.com	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	M. Sc.	
Module Tutor	N.A.		**e-mail**	N.A.	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of this module is to provide an introduction to AutoCAD, a popular computer-aided design (CAD) software used in various industries for creating 2D and 3D drawings. Students will learn the fundamental concepts and techniques of AutoCAD and develop the skills necessary to create and edit sketches and drawings.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students should be able to: 1. Introduction to Engineering Drawing: Standards of Drawing Sheets. 2. Types of Lines and Lettering, Use of Drawing Instruments. 3. Principles of Geometrical Constructions: Straight Line Operations, Curved Line Operations, Tangency Construction. 4. Drawing of Contour Lines of Parts, Dimensioning, Orthographic Projection: Drawing of Complete Orthographic Projection. Introduction to Graphical Representation: Projection of Points, Projection of Straight Lines. 5. Determination of True Length of Straight Lines, Determination of Line Inclination with the Main Planes. 6. Understand the basic features and user interface of AutoCAD. 7. Create and modify different types of geometric objects such as lines, circles, arcs, rectangles, ellipses, polygons, and polylines. 8. Apply editing commands to modify sketches, including offsetting, filleting, chamfering, and trimming. 9. Demonstrate proficiency in using AutoCAD tools and commands to produce accurate and professional drawings.
Indicative Contents المحتويات الإرشادية	The module will cover the following topics: 1. Introduction to Engineering Drawing: Standards of Drawing Sheets. [2 hrs.]. 2. Types of Lines and Lettering, Use of Drawing Instruments. [4 hrs.]. 3. Principles of Geometrical Constructions: Straight Line Operations, Curved Line Operations, Tangency Construction. [4 hrs.]. 4. Drawing of Contour Lines of Parts, Dimensioning, Orthographic Projection: Drawing of Complete Orthographic Projection. [4 hrs.]. 5. Introduction to Graphical Representation: Projection of Points, Projection of Straight Lines. [4 hrs.]. 6. Determination of True Length of Straight Lines, Determination of Line Inclination with the Main Planes.[. 2 hrs.] 7. Introduction to AutoCAD: [4 hrs.) • Overview of CAD and its applications. • Introduction to AutoCAD's user interface and tools. • Understanding coordinate systems and drawing units. • Drawing Lines in AutoCAD. • Using different methods to create lines. • Modifying line properties such as length, angle, and position. • Exploring line types and line weights. 8. Drawing Circles: (4 hrs.) • Creating circles of various sizes and positions. • Editing circle properties like diameter and radius.

- Applying circle-related commands.
- Drawing Arcs: Creating arcs with different angles and radii, editing arc properties and orientation, Using arc-related commands.

9. Drawing Rectangles: (4 hrs.)
    - Creating rectangles with specific dimensions and positions.
    - Modifying rectangle properties like length, width, and corner radius.
    - Exploring rectangle-related commands.
    - Drawing Ellipses: Creating ellipses with different axes and positions, Editing ellipse properties such as major and minor axes, Using ellipse-related commands.

10. Drawing Polygons: (6 hrs.)
    - Creating polygons with a specified number of sides.
    - Modifying polygon properties like radius and position.
    - Exploring polygon-related commands.
    - Drawing Polylines: Creating continuous and segmented lines using, polylines, Modifying polyline vertices and segments, Applying polyline-related commands.
11. Drawing Donuts: (2 hrs.)
    - Creating solid-filled circles with a hollow center.
    - Editing donut properties like outer and inner diameters.
    - Using donut-related commands.

12. Editing Sketches: (4 hrs.)
    - Using editing commands to modify existing objects.
    - Moving, copying, rotating, and scaling sketches.
    - Exploring additional editing techniques.
13. Offsetting Sketched Objects: (5 hrs.)
    - Creating parallel copies of existing objects.
    - Modifying offset distances and orientations.
    - Applying offset-related commands.
    - Filleting Sketches.
14. Creating rounded corners between intersecting objects. [4 hrs]
    - Adjusting fillet radii and applying fillet-related commands.
    - Chamfering Sketches: Creating beveled edges between intersecting, objects, modifying chamfer distances and angles, Applying chamfer-related commands.
15. Trimming the Sketched Objects: [4 hrs.]
    - Removing unwanted portions of sketched objects.
    - Trimming objects using boundaries or other objects.
    - Exploring additional trimming techniques.

Throughout the module, students will engage in hands-on exercises and projects to reinforce their understanding of AutoCAD's features and commands.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The module on AutoCAD can employ a variety of learning and teaching strategies to effectively deliver the content and achieve the learning outcomes. Here are some strategies that can be implemented: Lectures: The module can include lectures where the instructor presents the theoretical concepts, principles, and techniques of AutoCAD. The lectures can provide an overview of each topic, explain the functionalities of different tools and commands, and demonstrate their usage through examples. Practical Demonstrations: Alongside lectures, practical demonstrations can be conducted to showcase how to perform specific tasks and operations in AutoCAD. The instructor can demonstrate step-by-step procedures for creating various objects, editing sketches, and using different commands. This allows students to observe and learn the software's functionalities in action.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	3, 4, 7
	Assignments	2	10% (10)	2, 12	3, 4, 6 and 7
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	13	1 to 8
Summative assessment	**Midterm Exam**	2 hrs.	10% (10)	10	1 to 7
	Final Exam	3 hrs.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Engineering Drawing: Standards of Drawing Sheet
Week 2	Types of Lines and Lettering, Use of Drawing Instruments.
Week 3	Principles of Geometrical Constructions: Straight Line Operations, Curved Line Operations, Tangency Construction.
Week 4	Drawing of Contour Lines of Parts, Dimensioning, Orthographic Projection: Drawing of Complete Orthographic Projection.
Week 5	Introduction to Graphical Representation: Projection of Points, Projection of Straight Lines.
Week 6	Determination of True Length of Straight Lines,
Week 7	Determination of Line Inclination with the Main Planes..
Week 8	Introduction to AutoCAD , Drawing lines in AutoCAD.
Week 9	Drawing circles , drawing arcs
Week 10	Drawing Polygons
Week 11	Mid-term Exam + Drawing rectangles , drawing ellipse, drawing polylines
Week 12	Drawing donuts, editing sketches
Week 13	Offsetting sketched objects, filleting sketches
Week 14	Chamfering sketches
Week 15	Trimming the sketched objects
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي المرسم + المختبر	
	Material Covered
Week 1	Introduction to Engineering Drawing: Standards of Drawing Sheet
Week 2	Types of Lines and Lettering, Use of Drawing Instruments.
Week 3	Principles of Geometrical Constructions: Straight Line Operations, Curved Line Operations, Tangency Construction.
Week 4	Drawing of Contour Lines of Parts, Dimensioning, Orthographic Projection: Drawing of Complete Orthographic Projection.
Week 5	Introduction to Graphical Representation: Projection of Points, Projection of Straight Lines.
Week 6	Determination of True Length of Straight Lines, Determination of Line Inclination with the Main Planes..

Week 7	Introduction to AutoCAD , Drawing lines in AutoCAD.
Week 8	Drawing circles , drawing arcs.
Week 9	Drawing Polygons
Week 10	Drawing rectangles.
Week 11	Drawing ellipse, drawing polylines.
Week 12	Drawing donuts, editing sketches
Week 13	Offsetting sketched objects, filleting sketches
Week 14	Chamfering sketches
Week 15	Trimming the sketched objects

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	UNDERSTANDING THE AUTOCAD® 2010 (Book)	No
Recommended Texts		No
Websites	https://iastate.pressbooks.pub/visualgraphiccomm/chapter/chapter-1/	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (3) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10103**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	One	
Administering Department	Biomedical Engineering		**College**	Engineering College	
Module Leader	Israa Mohammed Rasheed		**e-mail**	eng.israa.rasheed@uobabylon.edu.iq	
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Israa Mohammed Rasheed		**e-mail**	eng.israa.rasheed@uobabylon.edu.iq	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem-solving skills and an understanding of the Pythagorean Theorem. 2. To understand Complex Functions 3. The student is studying Compound Functions 4. Learn Inverse Functions 5. This course deals with the basic concepts of drawing coordinates. 6. The student learns to draw trigonometric functions and their inverses 7. This is the basic theme of all angles and their transitions. 8. It deals with absolute values 9. To understand 10. Domain And Range Of A Function 11. The student is studying Slope And Equation Of Line 12. Learn Limits And Continuity
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learn how to draw circles with dots. 2. Knowledge of trigonometric functions and how to find them. 3. The student can prove trigonometric functions and their inverses. 4. Knowledge of deterministic functions 5. Solve physics problems related to targets. 6. Knowledge of finiteness and continuity. 7. Solve physics applications using trigonometric functions. 8. Know how to solve problems related to determinants. 9. He knows how to solve problems related to finite integrals.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. [4 hrs] Sets, Relations. [5 hrs] Intervals, Functions. [6 hrs] Range and Domain. [5 hrs] Absolute Value. [5 hrs] Coordinates and Graphs in Plane. [4 hrs] Slope and Equation of Line. [7 hrs] Trigonometric Functions (Identities, Domain, Range, Graphs,…). [7 hrs] Limits, Limit Laws. [5 hrs] Sandwich Theorem, Infinite Limits. [8 hrs] Continuity, L'Hopital's Rule. [6 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this unit is to encourage students to engage in exercises and solve mathematical and physics problems, while improving and expanding their critical thinking skills. This will be achieved through classes and interactive tutorials and by thinking about the type of problem solving applications of theories and physical laws. Active Learning Strategies: Encourage active learning through activities such as problem-solving exercises, group discussions, role-playing, concept mapping, and peer teaching. These strategies promote deeper engagement with the material and enhance retention and understanding. Use of Technology: Integrate technology tools and resources such as interactive simulations, virtual laboratories, online resources, and educational software to enhance learning. These tools can provide visual representations, interactive exercises, and immediate feedback to facilitate understanding and engagement. Assessments: Use a variety of assessment methods, including quizzes, assignments, exams, and project presentations, to evaluate students' understanding of the material. Provide timely and constructive feedback to help students identify areas for improvement.

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	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	3, 8	LO #1, 5, 6 and 7
	Assignments	2	10% (10)	5, 10	LO # 3, 4, 6,8 and 9
	Projects	1	10% (10)	continuous	LO # 7, 8,9
	Report	1	10% (10)	13	LO # 6,7, 8 and 9
	Midterm Exam	2 hr	10% (10)	7	LO # 1-6

Summative assessment	**Final Exam**	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Sets, Relations, Intervals, Functions
Week 2	Sometimes There Is No Function Name
Week 3	Complex Functions
Week 4	Compound Functions
Week 5	Inverse Functions
Week 6	Graph Of Inverse Functions
Week 7	**Midterm Exam** + Absolute Value
Week 8	Meaning Of Absolute Value
Week 9	Coordinate Plane And Graphing Equations
Week 10	Plotting A Point In The Coordinate Plane
Week 11	Domain And Range Of A Function
Week 12	Slope And Equation Of Line
Week 13	Limits And Continuity
Week 14	Trigonometric Functions (Graphs, Domain, Range..)
Week 15	Basic Algebra, Geometry And Trigonometry Formulas
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
	There is no laboratory on this Module.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Thomas' Calculus - Thomas, Weir, Hass, Giordano, 11th ed	Yes

Recommended Texts	1. How To Solve Physics Problems-OMAN 2. Olive - Maths - A Student's Survival Guide, 2nd Edition	No
Websites	1. https://poshukach.com/search?q=Functions&fr=ps&gp=496724&altserp=1 2. https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions 3. https://rodrigopacios.github.io/mrpacios/download/Thomas_Calculus.pdf 4. https://www.alfreed-ph.com/2018/02/Thomas-Calculus-pdf.html 5. https://www.toppr.com/ask/question/find-the-equation-of-the-line-whose-slope-and-yintercept-are-given-slope2-yintercept4/ 6. https://eguruchela.com/math/calculator/slope-length-equation 7. https://www.geogebra.org/m/WpfYnGE5	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (4) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Programming I**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10204**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UG1		**Semester of Delivery**	One	
Administering Department	Biomedical Eng. Dep		**College**	College of Engineering	
Module Leader	Mohammed Raheem Mohammed		**e-mail**	eng568.mohammed.raheem@uobabylon.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MS.c	
Module Tutor	N.A.		**e-mail**	N.A.	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To learn the hardware and software components of computer. 2. To understand the work principles of computer and it can control its different parts correctly. 3. To study Word program and how work on this program. 4. To study Excel program and how work on this program with its different features such as drawing, analyzing, and using functions. 5. To understand PowerPoint program and how work on this program. 6. To design different examples of presentation by using PowerPoint program
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how computer works and how it saves data in its memory. 2. List the different types of memory in the computer and how it is divided. 3. Apply the features of Word, Excel, PowerPoint programs practically. 4. Discuss the connection between memory and other computer parts and how data transfer between them. 5. Describe the role of central processing unit. 6. Define Microsoft Office company. 7. Identify main purpose of Word, Excel, PowerPoint programs and where they are used. 8. Implement different examples on each of Word, Excel, PowerPoint programs 9. Use the skills of work in Word, Excel, PowerPoint programs in satisfying the assignments and reports which are required in other courses and stages.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <u>Part A – Computers</u> Computer Parts- hardware and software components, central processing unit (CPU), Systems software, Application Software. [3 hrs] Types of Computers– Desktop computers, Laptops, Smart phones, Handheld computers, Tablet PCs. [4 hrs] Parts of a computer- System unit, CD and DVD drives, Input Output Devices like speakers, modem, printers and so no. [4 hrs] Windows system- Working with desktop icons like pointing, clicking, double-clicking, and right click, Adding and removing icons from the desktop, the taskbar, the notification area, and the Start menu. [6 hrs] <u>Part B – Microsoft office Programs</u>

	Word Program- Using the Keyboard in MS Word, formatting text, creating a New Document, Change Text Alignment, Saving Documents, Printing, Inserting Tables, Graphics. [10 hrs] Excel Program – using spreadsheets, navigating between worksheets, saving workbook file, entering data to worksheets, adding and deleting columns and rows, inserting formulas and functions, previewing and printing workbook. [10 hrs] PowerPoint Program – adding, rearranging and deleting slides, applying new layout, entering text into slides, adding transition between slides, using backgrounds, adding clip art. [10 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Showing some videos on the components of computer and there are internal them to help students imagine that. 2. Give students some homework on Word, Excel, PowerPoint programs to give students opportunity to try and solve their problems by themselves. 3. Use lap to allow to design various presentations, assignments, and reports by using computers with different versions and companies. 4. Allow students to discuss and produce their ideas between students separately and evaluating all these efforts.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	3.13
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 8 and 9
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 9
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-9
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction on computer and its hardware and software components
Week 2	Types of Computers
Week 3	Memory and Storage in computer
Week 4	Windows system
Week 5	Introduction on Microsoft Office Word
Week 6	Formatting Text and inserting different things in Word document
Week 7	Mid-term Exam + Inserting Tables in Word document
Week 8	Understanding the use of spreadsheets and Excel with learning its parts.
Week 9	Entering text, numbers, and dates into a worksheet
Week 10	Applying different functions in Excel program.
Week 11	Analysis and sorting data in Excel program.
Week 12	Drawing information in Excel program.
Week 13	Introducing the main parts and features of PowerPoint program.
Week 14	Adding, Rearranging, and Deleting Slides of PowerPoint program.
Week 15	Adding Clip Art to a Slide, and transitions between slides
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction on computer and its part
Week 2	Lab 2: Working on computer with adding and deleting icons between desktop and other locations
Week 3	Lab 3: Design Word document with formatting texts and Change Text Alignment
Week 4	Lab 4: Design Word document with Inserting Tables and Text Boxes
Week 5	Lab 5: Creating Word document with Inserting graphics, Symbols, Special Characters and equations
Week 6	Lab 6: Creating Excel document with insert and format its data
Week 7	Lab 7: Sorting data in Excel document in different orders
Week 8	Lab 8: Inserting and deleting cells, rows, and columns in Excel document
Week 9	Lab 9: Applying various functions in Excel document
Week 10	Lab 10: Design Excel assignment with analysis and drawing its data
Week 11	Lab 11: Adding, Rearranging, and Deleting Slide in PowerPoint document
Week 12	Lab 12: Adding Clip Art, background, and Text to Slides of PowerPoint document
Week 13	Lab 13: Applying different transitions between slides in PowerPoint document
Week 14	Lab 14: Design PowerPoint presentation
Week 15	Lab 15: Applying PowerPoint features with backgrounds, and transitions

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Microsoft Office 2016 step by step, Joan Lambert and Curtis Frye, 2015.	No
Recommended Texts	Tutorials on Office 2016 for Beginners in PDFs	No
Websites	https://ptgmedia.pearsoncmg.com/images/9780735699236/samplepages/9780735699236.pdf	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors

	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (5) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Workshops Technology**			**Module Delivery**	
Module Type	**Supplementary**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10105**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		UGI	**Semester of Delivery**		One
Administering Department		Biomedical Engineering	**College**	College of Engineering	
Module Leader	Ali Sadik Gafer Qanber		**e-mail**	ali.sadigj@uobabylon.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		PH.D
Module Tutor	N. A.		**e-mail**	N. A.	
Peer Reviewer Name		N. A.	**e-mail**	N. A.	
Scientific Committee Approval Date		31/5/2024	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop a strong foundation in workshop and laboratory safety principles, protocols, and practices, ensuring a safe working environment throughout the course. 2. To equip students with comprehensive knowledge and practical skills in various cutting techniques, including the proper usage of cutting tools, measuring equipment, and adherence to safety procedures. 3. To master a wide range of essential machining operations, such as sawing, drilling, turning, milling, and grinding, ensuring proficiency in tool selection, operation techniques, and safety precautions. 4. To cultivate expertise in welding by providing hands-on experience with different welding equipment, techniques (arc welding, gas welding), and enabling students to successfully complete welding projects. 5. To develop a sound understanding of electrical concepts, tools, and equipment used in workshops and laboratories, including the ability to interpret electrical symbols and apply fundamental circuit practices. 6. To foster skills in carpentry through the exploration of various tools and equipment, enabling students to confidently perform woodworking tasks while adhering to safety guidelines. 7. To promote proficiency in diverse joining techniques, such as plumbing and half-on-half methods, through practical exercises, allowing students to create structurally sound joints and produce high-quality samples.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate a thorough understanding of safety principles and practices in workshop and laboratory environments, ensuring the ability to identify and mitigate potential hazards effectively. 2. Apply knowledge of cutting tools and measuring equipment to accurately and safely perform cutting tasks in various materials. 3. Utilize proper techniques and equipment to execute sawing and drilling operations accurately and efficiently. 4. Apply appropriate turning, milling, and grinding techniques to shape and finish materials with precision. 5. Display proficiency in different welding processes, including arc welding and gas welding, and produce high-quality welded samples. 6. Interpret electrical symbols and diagrams, demonstrating a clear understanding of electrical tools and equipment used in workshop settings. 7. Apply fundamental electrical circuit principles to construct and troubleshoot basic circuits. 8. Demonstrate proficiency in the safe and effective usage of carpentry tools and equipment for woodworking projects. 9. Apply various joining techniques, such as plumbing and half-on-half methods, to create structurally sound joints. 10. Execute manual filing techniques to shape and smooth materials accurately.

	11. Demonstrate proficiency in using a handsaw to make precise cuts in different materials. 12. Perform internal and external manual tapping to create threads accurately. 13. Successfully complete mid-term and final exams, showcasing comprehensive knowledge and understanding of course material. 14. Exhibit effective teamwork and communication skills during practical exercises, demonstrating the ability to collaborate and contribute positively to a workshop or laboratory setting.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Personal Protective Equipment, Introduction, Conditions of Personal Protective Equipment, Duties of the Worker Towards Personal Protective Equipment ,Types of Personal Protective Equipment, Protective Clothing, Head Protection Equipment ,Hearing Protection Equipment , Respiratory Protection Equipment, Hand Protection Equipment, Foot Protection Equipment, Face and Eyes Protection Equipment , Safety Belts , Protection from Low Temperatures . Manual Operating Tools. [10 hrs] File and the Filing Process, Types of Files. [4 hrs] Vernier, Examples, Micrometer, Examples. [6 hrs] Milling, Vertical Milling Machine, Horizontal Milling Machine Conventional Milling, Climb Milling. [5 hrs] Welding, Welding Processes, Conditions that must be Available to Perform the Welding Process, The Forms of Welding Joints, The Main Welding Methods, The Method of Electric arc Welding, The method of Electric Resistance Welding. [6 hrs] Casting, Metal Casting Operations, The Uses of the Metal Casting Process, The Specifications of the Metals Being Formed, The Classification of the Metal Casting Process, The Basic Stages of the Metal Casting Process, and The Classification of Casting Sand. [6 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies employed in this workshop and laboratory course emphasize active engagement, practical skill development, and comprehensive understanding. Students will participate in safety discussions, hands-on demonstrations, and guided practice sessions to enhance their practical skills. Theoretical explanations, interactive discussions, and practical application will be used to teach welding and electrical concepts. Regular assessments, including exams and productive samples, will evaluate students' progress. These strategies create an

	immersive learning environment that fosters knowledge acquisition, skill development, and critical thinking.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	5	10% (10)	3, 6, 9,12 ,15	LO #1,2,4,5,,8,10,11,13 and 14
	Assignments	4	10% (10)	4, 8,11,14	LO # 1,2,3, 5,6,7, 9,10, 12 and 13
	Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	10	LO # 1-9
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Principles of Safety in Workshop and Laboratories
Week 2	Cutting: Cutting Tools, Measuring Equipment
Week 3	Sawing, Drilling
Week 4	Turning ,Milling, Grinding
Week 5	Welding: Equipment, Arc Welding, Gas Welding, Productive Sample
Week 6	Electricity: Tools and Equipment, Electrical Symbols
Week 7	Transformers, Electrical Circuit Fundamentals Practices
Week 8	Carpentry: Tools and Equipment
Week 9	Join Half on Half Practice, Cylindrical Shaft Practice, Productive Sample
Week 10	**Mid-term Exam** + Plumbing: Tools and Equipment, Uniform Pentagonal Practice
Week 11	Joining by Plumbing, Productive Sample
Week 12	Filings: Tools and Equipment
Week 13	Manual Filings
Week 14	Handsaw
Week 15	Internal and External Manual Tapping
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1 :Safety in Workshop and Laboratories
Week 2	Lab 2: Discussion Safety in Workshop and Laboratories
Week 3	Lab 3: Measuring Equipment , Vernier
Week 4	Lab 4 : Discussion Measuring Equipment , Vernier
Week 5	Lab 5: Measuring Equipment , Micrometer
Week 6	Lab 6: Discussion Measuring Equipment , Micrometer
Week 7	Lab 7: Welding
Week 8	Lab 8: Discussion Welding
Week 9	Lab 9 : Turning
Week 10	Lab 10: Discussion Turning

Week 11	Lab 11: Casting
Week 12	Lab 12: Discussion Casting
Week 13	Lab 13: Milling
Week 14	Lab 14: Discussion Milling
Week 15	Lab 15: Carpentry and Discussion Carpentry
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (6) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language I**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10206**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		UG1	**Semester of Delivery**		One
Administering Department		Biomedical Engineering	**College**	Engineering College	
Module Leader	Hayder Hamzah Menkash		**e-mail**	Eng.hayder.hamzah@uobabylon.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		MS.c
Module Tutor	N.A.		**e-mail**	N.A.	
Peer Reviewer Name		N.A.	**e-mail**	N.A.	
Scientific Committee Approval Date		31/05/2024	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To learn how to do Reading Comprehension for simple or difficult passages. 2. To understand the methods of Structural Items 3. To study and to use tenses such as Present Simple, Present Continuous, Past Simple, Past Continuous, Present Perfect, and Future Simple. 4. To distinguish between Conditional Statements (Types I, II, III). 5. To know Indirect Questions, Simple Statements. 6. To list of confusing words in English language.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learn to write clearly and effectively about literature and language and to construct evidence-based written arguments. 2. Understand different literary genres and forms and the aesthetic dimensions of literary texts. 3. Recognize that texts can be approached in multiple ways. 4. Understand the methods of writing the essays and articles with correct grammar. 5. Learn the pronouns as well as where and how they can be use. 6. Develop habits of reading for both pleasure and intellectual edification.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Reading – Reading Comprehension I, Structural Items. [4 hrs] Tenses – Present Simple, Present Continuous, Past Simple, Past Continuous, Present Perfect, and Future Simple. [6 hrs] Main Statements - Conditional Statements (Types I, II, III), Indirect Questions, Simple Statements. [4 hrs] confusing words – giving most confusing words in English language which should be used for connecting statements. [3 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1. Allowing students to listen to English videos to help students to learn the pronounce of words correctly. 2. Ask student to give new statements in English and speak with each other in English only. 3. Ask students to produce presentation in English in different topics and do that in groups. 4. Allow students to discuss and produce their ideas between students separately and put marks on these activities.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
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**	2	10% (10)	5, 10	LO #1, 2, 3 and 4
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 5 and 7
	Presentation	1	10% (10)	8	LO # 1-6
	Report	1	10% (10)	13	LO # 3, 4 and 5
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Reading Comprehension I
Week 2	Present Simple
Week 3	Present Continuous I
Week 4	Present Continuous II
Week 5	Past Simple I
Week 6	Past Simple II
Week 7	Mid-term Exam + Future Simple
Week 8	Presentations
Week 9	Past Continuous I
Week 10	Past Continuous II
Week 11	Present Perfect
Week 12	Conditional Statements (Types I, II, III)
Week 13	Indirect Questions
Week 14	Simple Statements
Week 15	confusing words
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New headway beginner student book, fourth edition, John and Liz Soars	Yes
Recommended Texts	English Grammar in Use Book with Answers: A Self-Study Reference and Practice Book for Intermediate Learners of English 5th Edition by Raymond Murphy	No
Websites	https://apoyanblog.files.wordpress.com/2017/08/new_headway_beginner_-_student_39_s_book.pdf	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (7) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electrical Circuits II**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10201**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level		UGI	**Semester of Delivery**		Two
Administering Department		Biomedical Eng.	**College**	College of Engineering	
Module Leader	Akram Jaddoa Khalaf		**e-mail**	eng.akram@uobabylon.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Akram Jaddoa Khalaf		**e-mail**	eng.akram@uobabylon.edu.iq	
Peer Reviewer Name		N.A.	**e-mail**	N.A.	
Scientific Committee Approval Date		31/05/2024	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To understand Sinusoidal Alternating Waveforms. 2. To perform the Phasor for AC-electrical circuits. 3. To understand the basic subjects of AC-electrical circuits

	4. To develop problem-solving skills and an understanding of AC circuit theory through the applications. 5. To understand current and voltage from AC-Circuit. 6. To understand Ohm's law in the Frequency Domain. 7. To simplify the Impedances network. 8. To understand Kirchhoff's Laws in the Frequency Domain. 9. To perform mesh and Nodal analysis. 10. To understand the Maximum Power Transfer for AC-electrical circuits. 11. To understand Resonance Circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. List the various terms associated with AC-electrical circuits. 2. Recognize how electricity works in AC-electrical circuits. 3. Identify the phasor relationship for capacitor and inductor. 4. Describe the Impedance and Admittance. 5. Recognize the equivalate Impedance. 6. Discuss the concept of Ohm's law. 7. Analyze the AC circuit using Kirchoff's current and voltage laws. 8. Analyze the AC circuit based on mesh and Nodal analysis. 9. Analyze the AC circuit based on Superposition Theorems. 10. Analyze the AC circuit using Source Transformation Theorems. 11. Analyze the AC circuit based on Thevenin's Theorem and Norton's Theorem. 12. Design the Resonance Circuits.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Ac Principles- Sinusoidal Alternating Waveforms, Sinusoidal AC Voltage characteristics, and definitions, The Sine Wave, Phase Relations. [8 hrs.] Effective Root-Mean-Square (R.M.S.) Value, Average Value. [8 hrs.] Phasors and The Basic Elements, Ohm's Law, Phasor Relationships for Circuit Elements (Resistor, Capacitor, and Inductor), Impedance and Admittance. [8 hrs.] Kirchhoff's (Current and Voltage) Laws in the Frequency Domain. [10 hrs.] Impedance Combinations (Series and Parallel Impedance, Wye-Delta Transformations). [8 Hrs.] Sinusoidal Steady-State Analysis- AC- Methods of Analysis-Nodal Analysis, Nodal Analysis with Voltage Sources. [15 hrs.] Mesh Analysis Method, Mesh Analysis with Current Sources. [15 hrs.] AC- Circuit Theorems- Superposition, Source Transformation. [10 hrs.] Thevenin's Theorem, Norton's Theorem, Maximum Power Transfer. [15 hrs.] Resonance, Series Resonant Circuit, Parallel Resonant Circuit, The Quality Factor (Q). [10 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the activities while also enhancing and broadening their critical thinking abilities. This will be accomplished through lectures, interactive tutorials, and taking into account the kinds of straightforward experiments with some sampling activities that the students will find fascinating.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل	132	**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	7.13
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	225		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	6, 13	LO # 1-5, 9-11
	Assignments	2	10% (10)	3, 11	LO # 3, 4, 6 and 7
	Lab	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hrs.	10% (10)	10	LO # 1-8
	Final Exam	3 hrs.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Concepts for AC-Electrical Circuits

Week 2	Sinusoidal Alternating Waveforms
Week 3	Phase Relations.
Week 4	Effective Root-Mean-Square (R.M.S.) and Average Value
Week 5	Phasors and The Basic Circuits Elements
Week 6	Impedance and Admittance, Kirchhoff's Laws in The Frequency Domain
Week 7	Impedance Combinations: Series and Parallel Impedance, WYE-DELTA Transformations
Week 8	Sinusoidal Steady-State Analysis: Nodal Analysis
Week 9	Sinusoidal Steady-State Analysis: Mesh Analysis
Week 10	Midterm Exam + Sinusoidal Steady-State Analysis: Superposition
Week 11	Sinusoidal Steady-State Analysis: Source Transformation
Week 12	Sinusoidal Steady-State Analysis: Thevenin's Theorem
Week 13	Sinusoidal Steady-State Analysis: Norton's Theorem
Week 14	Maximum Average Power Transfer
Week 15	Series and Parallel Resonant Circuit
Week 16	**A Preparatory Week Before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Measurements of AC signal
Week 2	Lab 2: Phasor Diagram for RC series
Week 3	Lab 3: Phasor Diagram for RC parallel
Week 4	Lab 4: Phasor Diagram for RL series
Week 5	Lab 5: Phasor Diagram for RL parallel
Week 6	Lab 6: Kirchhoff's Laws in AC Circuits
Week 7	Lab 7: Nodal Analysis in AC Circuits(part1)
Week 8	Lab 8: Nodal Analysis in AC Circuits(part2)
Week 9	Lab 9: Mesh Analysis in AC Circuits (part1)
Week 10	Lab 10: Mesh Analysis in AC Circuits (part2)
Week 11	Lab 11: Superposition Theorem in AC Circuits
Week 12	Lab 12: Thevenin's Theorem in AC circuits (part1)

Week 13	Lab 13: Thevenin's Theorem in AC circuits (part2)
Week 14	Lab 14: Maximum Power Transfer in AC circuits (part1)
Week 15	Lab 15: Maximum Power Transfer in AC circuits (part2)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Textbook	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education.	Yes
Recommended Texts	ELECTRIC CIRCUITS, J. W. Nilsson and S. A. Riedel, Pearson Education Limited.	Yes
Websites	https://library.iitp.ac.in/images/btech_ebook/Fundementals%20of%20Electric%20Circuits%20by%20Alexander%20and%20Sadiku.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work is required but credit awarded
	F – Fail	راسب	(0-44)	A 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 (8) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Biochemistry**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10202**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	One	
Administering Department	Biomedical Engineering		**College**	College Engineering	
Module Leader	Rasha Faris Hadi		**e-mail**	rashafarishadi@gmail.com	
Module Leader's Acad. Title	Master's		**Module Leader's Qualification**	MS.C	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	N.A		**e-mail**	N.A	
Scientific Committee Approval Date	31/5/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. This course deals with the basic concept of Biochemistry. 2. study of everything related to the life of living organisms. 3. understanding of the various vital interactions that occur within living cells and energy production. 4. study of the structure and function of cellular components (such as carbohydrates, lipids, proteins;, nucleic acids, and other biomolecules).
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding the concept of biochemistry. 2. Understand the terminology of important biological molecules in living organisms. 3. Describe the process of digestion of carbohydrates and energy production in the cells of living organisms. 4. Identify the types of beneficial and harmful fats. 5. Explanation of the process of digestion of fats and its path in the human body. 6. Discuss the processes of protein degradation to produce urea. 7. Identify blood diseases. 8. Discuss hormonal abnormalities. 9. Learn the vitamins that are beneficial to the human body.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Carbohydrates metabolism the definition of biochemistry, the definition of clinical biochemistry, the definition of metabolism (anabolism, catabolism), Digestion of Carbohydrates, The fate of glucose in living organisms (glycolysis, gluconeogenesis, glycogenesis, glycogenesis). [8 hrs] Citric acid cycle, ATP formation, Oxidation, Phosphorylation, Lipid Metabolism, Digestion. [7 hrs] Glycerol, Triacylglycerols, Fatty acids, Ketone bodies, Lipid profile. [10 hrs] Proteins Metabolism, Digestion of proteins Amino acid, urea cycle, Enzymes, The interrelationship and control of metabolism, Interrelationships among metabolic pathways, Major metabolic activities of the various organs in humans. [6 hrs] Control of metabolism [6 hrs] Part B - Analogue Electronics Blood, Diseases due to errors in metabolism, Diabetes and Hyperlipidemia. [5 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. [7 hrs] Hormone, Classification, How act, their abnormalities, Minerals, Vitamins and their abnormalities. [8 hrs]

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

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 8 and 9
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	14	
	Report	1	10% (10)	13	LO # 5, 6 and 8
Summative assessment	**Midterm Exam**	2 hr	10% (10)	11	LO # 1-9
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and Carbohydrates metabolism, the definition of biochemistry
Week 2	the definition of clinical biochemistry, the definition of metabolism (anabolism, catabolism)
Week 3	Digestion of Carbohydrates, The fate of glucose in living organisms (glycolysis, gluconeogenesis, glycogenesis, glycogenesis)

Week 4	Citric acid cycle, ATP formation, Oxidation
Week 5	Phosphorylation, Lipid Metabolism, Digestion, Glycerol,
Week 6	Triacylglycerols, Fatty acids, Ketone bodies, Lipid profile
Week 7	Proteins Metabolism, Digestion of proteins
Week 8	Amino acid, urea cycle
Week 9	Enzymes, The interrelationship and control of metabolism
Week 10	Interrelationships among metabolic pathways, Major metabolic activities of the various organs in humans
Week 11	**mid-term exam**
Week 12	Blood, Diseases due to errors in metabolism Control of metabolism
Week 13	Diabetes and Hyperlipidemia
Week 14	Hormone, Classification, How act, their abnormalities
Week 15	Minerals, Vitamins and their abnormalities

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Determination of blood Glucose
Week 3	Lab 3: Quantitative determination of cholesterol
Week 4	Lab 4: determination of molech
Week 5	Lab 5: Quantitative determination of Fatty acids
Week 6	Lab 6: Method to measure serum TG
Week 7	Lab 7: Determination of protein in blood
Week 8	Lab 8: Determination of urea in blood
Week 9	Lab 9: Determination of protein in blood
Week 10	Lab 10: determination of Benedicat
Week 11	Lab 11: Clinical significance of Creatinine
Week 12	Lab 12: Methods used for uric acid determination
Week 13	Lab 13: determination of Glutamate oxaloacetate transaminase (GOT)
Week 14	Lab 14: mid-term exam
Week 15	Lab 15: determination of Glutamate pyruvate transaminase(GPT) enzyme

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Lippincott Biochemistry	Yes
Recommended Texts	Harper's Illustrated Biochemistry	Yes
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (9) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics II**			**Module Delivery**	
Module Type	**core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10203**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	Biomedical Engineering		**College**	Engineering College	
Module Leader	Suhair Hussein talib		**e-mail**	eng.suhair.hus@uobabylon.edu.iq	
Module Leader's Acad. Title	**lecture**		**Module Leader's Qualification**	Ph.d	
Module Tutor	Suhair Hussein talib		**e-mail**	eng.suhair.hus@uobabylon.edu.iq	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop the skills of calculating transcendental functions, inverse functions 2. To understand the inverse trigonometric function (domain, range, graphs, derivatives and integration). 3. This course covers the basic concepts of the natural logarithm function. 4. To understand logarithmic differentiation operations, exponential function (definition, properties, domain, range, graphs, derivatives and integrals). 5. To understand the operations of deterministic functions (definition, identities, domain, range, graphs, derivatives and integrals). 6. To understand trigonometric identities. 7. To understand the solution of hyperbolic functions problems 8. To understand the solution of inverse functions problems 9. To understand what derivatives are (for constants, variables, trigonometric functions, inverse trigonometric functions, and hyperbolic trigonometric functions) 10. To understand what integrations are (for constants, variables, trigonometric functions, inverse trigonometric functions, and hyperbolic trigonometric functions)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student learned the principles of inverse deterministic functions (definition, identities, domain, range, graphing, derivatives and integration). 2. Knowledge of trigonometric substitutions, the method of partial fractions, and polar coordinates (definition and properties) 3. Knowledge of solving problems of flat areas in polar coordinates, the area between two polar curves. 4. Knowledge of polar curve length principles, matrices and determinants (definitions, symbols and arithmetic operations). 5. Knowledge of polar curve lengths, matrices, and determinants (definitions, symbols, and mathematical operations). 6. The student knows how to solve problems using derivatives (for constants, variables, trigonometric functions, inverse trigonometric functions, and hyperbolic trigonometric functions). 7. The student knows how to solve problems by integration (for constants, variables, trigonometric functions, inverse trigonometric functions, and hyperbolic trigonometric functions).
Indicative Contents المحتويات الإرشادية	Calculus of Transcendental Functions, Inverse Functions, Inverse Trigonometric Function (Identities, Domain, Range, Graphs, Derivatives and Integrals), [5 hrs] Natural Logarithm Function (Definition, Properties, Domain, Range, Graphs, Derivatives and Integrals) [5hrs] Logarithmic Differentiation, Exponential Function (Definition, Properties, Domain, Range, Graphs, Derivatives and Integrals) [7 hrs] Hyperbolic Functions, [2 hrs] Identities, Domain, Range, Graphs, Derivatives and Integrals, [3 hrs] Inverse Hyperbolic Functions (Definition, Identities, Domain, Range, Graphs, Derivatives and Integrals) [5 hrs] Techniques of Integration, Basic Integration Formulas, [3 hrs]

	Integration by Parts, Trigonometric Integrals, Trigonometric Substitutions, Method of Partial Fractions, Polar Coordinates (Definition and Properties). [5 hrs] Polar Equations and Graphs. [2 hrs] Symmetry Tests for Polar Graphs. [3 hrs] Equations Relating Polar and Cartesian Coordinates. [5 hrs] Plane Areas in Polar Coordinates [2 hrs] Area Between Two Polar Curves [3hrs] Part B - Analogue Electronics Length of a Polar Curve. [3 hrs] Matrices and Determinants (Definitions, Notations and Arithmetic Operations). [5 hrs] Inverse of Matrix, Cramer's Rule. [4 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this unit is to encourage students to engage in exercises and solve mathematical and physics problems, while improving and expanding their critical thinking skills. This will be achieved through classes and interactive tutorials and by thinking about the type of problem solving applications of theories and physical laws. Active Learning Strategies: Encourage active learning through activities such as problem-solving exercises, group discussions, role-playing, concept mapping, and peer teaching. These strategies promote deeper engagement with the material and enhance retention and understanding. Use of Technology: Integrate technology tools and resources such as interactive simulations, virtual laboratories, online resources, and educational software to enhance learning. These tools can provide visual representations, interactive exercises, and immediate feedback to facilitate understanding and engagement. Assessments: Use a variety of assessment methods, including quizzes, assignments, exams, and project presentations, to evaluate students' understanding of the material. Provide timely and constructive feedback to help students identify areas for improvement.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 9	LO #1, 2, 3 and 5
	Assignments	2	10% (10)	4, 12	LO # 2, 3, 5,6 and 7
	Projects	1	10% (10)	continuous	LO # 4, 5
	Report	1	10% (10)	13	LO # 5, 6and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	6	LO # 1-5
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Trigonometric Functions (Graphs, Domain, Range..)
Week 2	Definitions Of Trig Ratios And Functions Angles Can Be Measured Two Ways:1. Degrees ,2. Radians
Week 3	Trigonometry Function, Periodic Trigonometric Function
Week 4	Identities, Algebra, Arithmetic Operations
Week 5	Completing The Square, The Quadratic Formula , Exponential Function
Week 6	**Midterm Exam** + Hyperbolic Function
Week 7	Derivatives, The Chain Rule, Higher Derivative
Week 8	Trigonometric Function, Transcendental Function Derivative
Week 9	Logarithm Function , Exponential Function , Inverse Function
Week 10	Trigonometric Function, Hyperbolic Function, The Inverse Hyperbolic Function
Week 11	Integration , Trigonometric Function Integral
Week 12	Transcendental Function Integral , Logarithm Exponential Invers
Week 13	Exponential Function, Invers Function
Week 14	Hyperbolic Functions, Methods Of Integration , Integration By Parts
Week 15	Trigonometric Substitution Integration, Partial Fractions Integration
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
	There is no laboratory on this Module.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Thomas' Calculus - Thomas, Weir, Hass, Giordano, 11th ed	Yes
Recommended Texts	1. How To Solve Physics Problems-OMAN 2. Olive - Maths - A Student's Survival Guide, 2nd Edition	No
Websites	1. https://calcworkshop.com/limits/limits-and-continuity/ 2. https://www.geogebra.org/m/WpfYnGE5 3. https://calcworkshop.com/limits/squeeze-theorem/ 4. http://www.sosmath.com/calculus/limcon/limcon03/limcon03.html 5. https://mathculus.com/what-is-the-squeeze-theorem-sandwich-theorem/	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (10) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Programming II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME20306**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	Biomedical Engineering		**College**	Engineering College	
Module Leader	Ali Hasan Dakheel		**e-mail**	Eng.ali.dakheel@uobabylon.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MS.C	
Module Tutor	N.A.		**e-mail**	N.A.	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To write an algorithms and to draw flowcharts for different systems. 2. To learn programming computer and how it can be work. 3. To classify understand Programming Languages and the differences between these languages 4. To study Visual Basic and how work on this program. 5. To learn all parts of Visual Basic such forms Designer and code editor. 6. To use the functions of Visual Basic such as button, label and textbox. 7. read and write, variables, constants, Mathematical Operations, Conditional Operators. 8. To design systems with If and Select Case Statement, Console Application, Loop, One and Two-dimensional arrays, Math Functions, Functions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Write an algorithm for any network according design rules. 2. Draw a flow chart for various systems. 3. Distinguish between Programming Languages and know the level of any language. 4. Understand the main purpose of Visual Basic and where it can be used. 5. Know all the parts of Visual Basic form and the role of each part. 6. Apply all the functions of Visual Basic like button, label and textbox with using variables, constants, Mathematical Operations, Conditional Operators, Logical Operators to design completed system. 7. Work on other important part of visual basic which is Console Application, Loop, One and Two-dimensional arrays. This part is used in various applications.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <u>Part A – Computer programming</u> Algorithm – write it for different examples. [5 hrs] Flow chart– design it for small and large systems. [6 hrs] Programming Languages - Classification of Programming Languages, the level of Programming Languages, compiler. [6 hrs] <u>Part B – Visual Basic</u> Introduction to Visual Basic - OOP, IDE, Create a Windows application, forms Designer and code editor, controls toolbox (button, label and textbox), properties window. [10 hrs] Operators – read and write, variables, constants, Mathematical Operations, Conditional Operators, Logical Operators, If and Select Case Statement. [10 hrs]

	Console Application – Console codes, Loop, One and Two-dimensional arrays, Math Functions, Functions. [10 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Viewing some videos on the components of Visual Basic to help students imagine that. 2. Ask student to give new ideas for systems and write an algorithms and draw a flow chart for these systems. 3. Use lap to allow to work practically on Visual Basic programs and allow the students to exceed their programming problems by themselves. 4. Allow students to discuss and produce their ideas between students separately and evaluating all these efforts.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	3.13
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل	75		

Module Evaluation تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 3 and 4
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 6and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	The rules of writing an algorithm
Week 2	Algorithm examples
Week 3	The rules of drawing flow chart
Week 4	Flow chart examples
Week 5	Introduction to Computer programming
Week 6	Classification of Programming Languages
Week 7	Mid-term Exam + Introduction to Visual Basic
Week 8	Understanding the use of spreadsheets and Excel with learning its parts.
Week 9	Create a Windows application
Week 10	Applying different toolboxes
Week 11	Variables , constants
Week 12	Mathematical Operations, Conditional Operators, Logical Operators
Week 13	If and Select Case Statement
Week 14	Console Application, Loop
Week 15	One and Two-dimensional arrays
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Visual Studio
Week 2	Lab 2: Integrated development environment (IDE)
Week 3	Lab 3: Windows Forms
Week 4	Lab 4: Toolbox window
Week 5	Lab 5: Design system with textboxes, labels, and button
Week 6	Lab 6: Adding new Form to the project
Week 7	Lab 7: Starting and Ending an Application
Week 8	Lab 8: Using variables and constants in a project
Week 9	Lab 9: Numeric and Non-numeric Data
Week 10	Lab 10: Mathematical Operations
Week 11	Lab 11: Logical Operators
Week 12	Lab 12: Conditional Operators
Week 13	Lab 13: If and case statement
Week 14	Lab 14: If….Then…Else If Statement
Week 15	Lab 15: Console Application

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Visual Basic 2017 Made Easy Dr.Liew 2017	No
Recommended Texts	Microsoft Visual Basic 2010 Step by Step	No
Websites	https://www.vbtutor.net/vb2017/vb2017me_preview.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (11) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Biophysics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10205**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	Biomedical Engineering		**College**	Engineering College	
Module Leader	Ahmed Naji Al-jamal		**e-mail**	eng.ahmed.aljamal@uobabylon.edu.iq	
Module Leader's Acad. Title	Asst. Prof. Dr.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	N.A.		**e-mail**	N.A.	
Peer Reviewer Name	N.A.		**e-mail**	N.A.	
Scientific Committee Approval Date	31/05/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop students' skills to familiarize themselves with the organs of the human body. 2. To understand the effort and energy that a person consumes. 3. To understand the mechanism of work done by man.

	4. This course deals with the basic concepts of heat exchange between the human body and the environment. 5. To see the basic structure of the human skeleton. 6. Understanding joint movement in the structure of the human body. 7. Infrared uses. 8. The benefits and harms of x-rays. 9. To understand how x-ray machines work. 10. Learn about the speed of light and its reflections and refractions. 11. Understanding the speed of sound and the use of ultrasound devices for medical examinations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learn how light travels. 2. Learn to use infrared devices for medical examinations. 3. Learn to use ultrasound devices for medical examinations. 4. Develop a list of different terms associated with the organs of the human body. 5. He can distinguish between ways of heat transfer. 6. Can discuss the differences between conduction, convection and radiation. 7. He can discuss Doppley's law of sound. 8. It is possible to discuss the interaction and participation of atoms in the formation of solids, liquids, gases and plasmas. 9. An accurate description of the skeletal structure of the human body. 10. Describe the work of the joints and the process of lubrication in the joints during movement. 11. He can know the total energy from the sum of the potential and kinetic energy. 12. He could determine the laws regulating the transfer of oxygen and carbon dioxide between the organs of the human body. 13. He can use laboratory equipment and devices for medical examinations. 14. Can discuss the body's processes (metabolism) to obtain food, water and oxygen to sustain life.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** Units and Physical Quantities, SI and non SI units, standard prefixes, [5 hrs] conversion factors, Light in Medicine, light as array, properties of light, reflection and refraction. [2 hrs] multiple element system, application of visible light in medicine. [2hrs] application of ultraviolet light in medicine, application of infrared light in medicine. [3hrs] Sound in Medicine. [2 hrs] general properties of sound, units, the intensity of the sound wave, Doppler effects, application in medicine [3 hrs] Pressure, definition, units, Boyle's law, Pascal principle, hydraulic systems. [5 hrs] Archimedes principle, buoyant force, pressure in the human body, measurement of blood pressure. [5 hrs] Temperature and Heat, temperature and phases of mater, temperature scales and thermometer. [2hrs]

	method of heat transfer (conduction, convection, radiation) Temperature and Heat, temperature and phases of mater, temperature scales and thermometer .[3hrs] method of heat transfer (conduction, convection, radiation). [3hrs] effects of heat on the body, diagnostic and therapeutic uses of heat. [2 hrs]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	In this course...the student understands the main principles of the components of the human body, and understands the formation of muscles and organs of the body, how food is transformed into energy and work, what is the skeleton, what are the types of bones, how strong are human bones, and what is the benefit of joint oil by reducing friction. The student will understand the processes of heat transfer between the body and the surroundings, the effect of high temperatures on human judgment, and how cold is used in surgical operations to close the eye's retina, and all in the treatment of Parkinson's disease. The student also understands the formation of bones from osteoblasts, the benefits of osteoblasts, and others.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1,2,3, 4, 8 and 9
	Assignments	2	10% (10)	4,6,11	LO # 4,5, 6, 7,8,9 and 10
	Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 11, 12,13 and 14
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-9
	Final Exam	3hr	50% (50)	16	All

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Difference Units and Physical Quantities, , SI and non SI units.
Week 2	standard prefixes, conversion factors.
Week 3	Light in Medicine, light as array, properties of light, reflection and refraction
Week 4	multiple element system, application of visible light in medicine.
Week 5	application of ultraviolet light in medicine, application of infrared light in medicine.
Week 6	Sound in Medicine, general properties of sound, units, the intensity of the sound wave .
Week 7	**Midterm Exam** + Doppler effects, application in medicine.
Week 8	Pressure, definition, units, Boyle's law, Pascal principle.
Week 9	hydraulic systems, Archimedes principle.
Week 10	buoyant force, pressure in the human body, measurement of blood pressure.
Week 11	Temperature and Heat.
Week 12	temperature and phases of mater, temperature scales and thermometer.
Week 13	method of heat transfer (conduction, convection, radiation).
Week 14	effects of heat on the body.
Week 15	diagnostic and therapeutic uses of heat.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: **Thomson experiment**
Week 2	Lab 2: **The endpoint energy of a beta particle**
Week 3	Lab 3: **Radiation Dose**
Week 4	Lab 4: **Latent heat of fusion of ice**
Week 5	Lab 5: **Ohm's law for an inductor or resistance**
Week 6	Lab 6: **Hardness Coefficient**
Week 7	Lab 7: **Calendar wheel (Joule equivalent)**
Week 8	Lab 8: **Characteristics of the calorimeter**
Week 9	Lab 9: **Hooke's law**
Week 10	Lab 10: **Boyle's Law**

Week 11	Lab 11: **Maxwell wheel**
Week 12	Lab 12: **Determine the focal length of the lens**
Week 13	Lab 13: **Inertia scale**
Week 14	**Review experiments.**
Week 15	**Theoretical and Practical final exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- J. R. Cameron, J. G. Skofronick 2- Barry G. Hinwood, A Textbook of Science for the Health Professions, Nelson Thomes Ltd. 2nd Edition, 2001. 3- Douglas C. Giancoli, Physics principles with applications, Pearson Education inc. 6 th Edition, 2005.	No
Recommended Texts	1. Devon J. Godfry "Advances in Medical Physics" 5th Edition (2016). Jeffrey Williamson "Medical Physics" (2017). 2. Paul Peter Urone, Harper & Roow "Physics with Health Science Applications"	No
Websites	1. https://books.google.iq/books/about/Medical_physics.html?hl=ar&id=hkRrAAAAMAAJ&redir_esc=y 2. https://www.alfreed-ph.com/2016/10/Medical-Physics-pdf.html	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE (12) DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Arabic Language**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BME10106**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	Biomedical Engineering		**College**	College of Engineering	
Module Leader	Hiba Mohammed Sagban		**e-mail**	eng730.hiba.mohammed@uobabylon.edu.iq	
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	MS.c	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	31/05/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- تقوية القدرة اللغوية لدى الطلبة واكسابهم مهارة التعبير الصحيح. 2- تقوية ملكة الطلبة الادبية لتذوق وادراك مواطن الجمال فيها . 3- تنمية قدرة الطلبة على فهم المادة المقروءة وتنمية مهاراتهم الخطية والاملائية لغرض الكتابة الصحيحة باستعمال علامات الترقيم . 4- مساعدة الطلبة على التعبير الصحيح وضبط اساليبهم 5- اكساب الطلبة قدرات نحوية تمكنهم من تقويم السنتهم عند القراءة . 6- تنمية الثروة اللغوية للطلبة وتزويدهم بكثير من الالفاظ بفضل ما يعرض عليهم من امثلة واساليب . 7- تدريب الطلبة على حسن الاداء وجودة الالقاء . 8- الربط بين مواد اللغة العربية بجميع فروعها . 9- التعرف على مواطن الضعف عند الطلبة في رسم الكلمات والعمل على معالجتها . 10- تنمية الذوق الفني لدى الطلبة بما يطلعون عليه من نماذج وما يمارسونه من كتابات .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- التعرف على مستويات اللغة العربية 2- معرفة القواعد النحوية والصرفية. 3- توظيف ادوات البحث العلمي في كتابة الابحاث العلمية . 4- ممارسة الكتابة والكلام باللغة العربية الفصيحة. 5- الكتابة الابداعية التي تعبر عن الذات وقضايا المجتمع .
Indicative Contents المحتويات الإرشادية	1- علوم اللغة العربية (التعريف بـ علم النحو- علم الصرف -علم الاشتقاق - علم العروض -علم القافية .-علم الانشاء -علم الخط – علم اللغة -علم البيان – علم المعاني – علم الادب).(ساعة واحدة) 2-نشأة اللغة (مفهوم اللغة – مفهوم اللهجة - مفهوم الكلام)- اهم نظريات نشأة اللغة (النظرية .التوقيفية - نظرية المحاكاة - نظرية المواضعة والاصطلاح).(ساعتين) 3-القواعد الاملائية (مفهوم الاملاء -اهداف الاملاء) اهم القواعد الاملائية : اولًا: قواعد همزة الوصل .وهمزة القطع.(ساعة واحدة). 4-ثانيًا: التفريق بين الضاد والظاء – طرق معالجة الخلط بين الضاد والظاء في النطق والكتابة.(ساعة واحدة) 5-ثالثا : التفريق بين التاء المربوطة والتاء الطويلة – مفهوم التاء المربوطة والتاء الطويلة – طرق . التفريق بين التاء الطويلة والتاء المربوطة والهاء.(ساعة واحدة) 6-رابعا: التفريق بين الالف المقصورة والالف الممدودة - قاعدة كتابة الالف المقصورة والممدودة . للتفريق بينهما.(ساعة واحدة) 7-الهمزة وسط الكلمة (قواعد كتابة الهمزة المتوسطة – انواعها – الحالات الشاذة في الهمزة .المتوسطة).(ساعة واحدة) 8-الهمزة المتطرفة (تعريفها - مواضع الهمزة المتطرفة – تثنية وجمع الاسماء المنتهية بهمزة متطرفة .)(ساعة واحدة) 9-علامات الترقيم (مفهوم علامات الترقيم / تاريخها / اهميتها / علامات الترقيم).(ساعتين) 10-اقسام الكلمة العربية (الاسم وعلاماته – الفعل وعلاماته – الحرف).(ساعة واحدة) 11-العدد (تعريفه - انواعه – احكامه).(ساعة واحدة) 12-سورة الجمعة (حفظ خمس ايات من سورة الجمعة - مناسبة السورة – اسباب نزول السورة موضوعات السورة – معاني بعض كلمات السورة. (ساعة واحدة) 13-الشاعر محمد مهدي الجواهري (حياته – قصيدة ناجيت قبرك- مميزات شعره).(ساعة واحدة) 14- الاخطاء اللغوية الشائعة ومعالجتها.(ساعة واحدة) 15 .النكرة والمعرفة.(ساعة واحدة)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1- اتباع اسلوب التدريس الحديث لدروس اللغة العربية للقضاء على صعوبة وجمود بعض مواضيع هذه الدروس ,ولإيصال الفكرة والمعلومة للطلبة بطرق مفهومة كالحوار المباشر بين التدريسي والطلبة وبالتالي تحفيزهم على التفكير من خلال طرح الأسئلة التفاعلية من قبل التدريسي . وثم اتاحة فرصة النقاش بين الطلبة انفسهم للاستفادة من محتوى الموضوع ,وتشجيع الطلبة على التعاون وزيادة اهتمامهم تجاه المواضيع المختلفة وتنمية الابداع لديهم. 2-امكانية استخدام التكنولوجيا والطرق الحديثة بالتدريس كاستخدام البور بوينت بالأصوات والصور لتميز المعلومات. - 3تكليف الطلبة لإعداد بحوث وتقارير بشكل فردي او على شكل مجموعات للتعبير عن مواهبهم والوقوف على الأخطاء التي تم ارتكابها وبالتالي يستفاد الطالب من هذه الأخطاء وتصحيحها لترسخ في اذهانهم .

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 1-5
	Assignments	3	10% (10)	3, 8,12	LO # 2, 4, 5
	Projects	1	10% (10)	Continuous	LO # 1-5
	Report	1	10% (10)	13	LO # 3, 4 and 5
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-5
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	.علوم اللغة العربية (التعريف بـ علم النحو- علم الصرف -علم الاشتقاق - علم العروض -علم القافية -علم الانشاء -علم الخط – علم اللغة -علم البيان – علم المعاني – علم الادب)
Week 2	.نشأة اللغة (مفهوم اللغة – مفهوم اللهجة - مفهوم الكلام)- اهم نظريات نشأة اللغة (النظرية التوقيفية – نظرية المحاكاة – نظرية المواضعة والاصطلاح)
Week 3	القواعد الاملائية (مفهوم الاملاء -اهداف الاملاء) اهم القواعد الاملائية : اولًا: قواعد همزة الوصل وهمزة القطع.
Week 4	التفريق بين الضاد والظاء – طرق معالجة الخلط بين الضاد والظاء في النطق والكتابة.
Week 5	.التفريق بين التاء المربوطة والتاء الطويلة – مفهوم التاء المربوطة والتاء الطويلة – طرق التفريق بين التاء الطويلة والتاء المربوطة والهاء
Week 6	التفريق بين الالف المقصورة والالف الممدودة - قاعدة كتابة الالف المقصورة والممدودة للتفريق بينهما
Week 7	امتحان المد + قواعد كتابة الهمزة المتوسطة, الحالات الشاذة في الهمزة المتوسطة.
Week 8	الهمزة المتطرفة (تعريفها - مواضع الهمزة المتطرفة – تثنية وجمع الاسماء المنتهية بهمزة متطرفة).
Week 9	علامات الترقيم (مفهوم علامات الترقيم / تاريخها / اهميتها / علامات الترقيم).
Week 10	اقسام الكلمة العربية (الاسم وعلاماته – الفعل وعلاماته – الحرف).
Week 11	العدد (تعريفه - انواعه – احكامه).
Week 12	سورة الجمعة (حفظ خمس ايات من سورة الجمعة - مناسبة السورة – اسباب نزول السورة – موضوعات السورة – معاني بعض كلمات السورة).
Week 13	الشاعر محمد مهدي الجواهري (حياته – قصيدة ناجيت قبرك – مميزات شعره).
Week 14	الاخطاء الشائعة ومعالجتها.
Week 15	.النكرة والمعرفة
Week 16	.الامتحان النهائي

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر		
	Material Covered	There is no Lab
Week 1		
Week 2		

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	الاصوات اللغوية / الدكتور ابراهيم انيس	Yes
Recommended Texts	شرح ابن عقيل على الفية ابن مالك ج1/ المؤلف: ابن عقيل- تحقيق: محمد محي الدين عبد الحميد	Yes
	فقه اللغة / الدكتور علي عبد الواحد وافي	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.