MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics I**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103011**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Electrical Engineering		**College**	Engineering	
Module Leader	Ahmed Qasim Jumaah ALdhahab		**e-mail**	Ahmedalthahab82@uobabylon.edu.iq	
Module Leader's Acad. Title	Assistant Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Ahmed Qasim Jumaah ALdhahab		**e-mail**	Ahmedalthahab82@uobabylon.edu.iq	
Peer Reviewer Name	Sameer Abdul Kadhim Alrufaiaat		**e-mail**	eng.samir.abdul@uobabylon.edu.iq	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Students are expected to learn how to deal with functions in terms of Solving Equations and Inequalities, Graphing and Functions, Polynomial Functions, Systems of Equations, etc. 2. The limit of the functions is very important for the student to know. By employing the limit to the function, student will be able to find the continuity/ discontinuity of the function, graph of the function, finding the derivative to the function, the function behavior when it reaches into both sides of infinity, etc. 3. The derivative is one of the key ideas in calculus and used to study a wide range of problems in mathematics, science, economics, and medicine. Simplifying the functions through applying derivative is very important for the students to know. Therefore, in derivative chapter, students will learn several things including, Derivative Formulas, Power Rule, Product Rule, Quotient Rule, Chain Rule, Higher Order Derivatives, Implicit Differentiation, Logarithmic Differentiation, Derivatives of Trig Functions, Exponential Functions, Logarithm Functions, Inverse Trig Functions, and Hyperbolic Trig Functions. 4. One of the most important applications of the derivative is using derivative as a tool to find the optimal (best) solutions to the problems. The derivative is used to find extreme values of functions, to determine and analyze the shapes of graphs, and to solve equations numerically. We also introduce the idea of recovering a function from its derivative. There are many of the derivative applications, such as the Mean Value Theorem, Related Rates, Critical Points, Minimum and Maximum Values, Increasing/Decreasing Functions, Inflection Points, Concavity, Optimization. 5. To calculate the areas and volumes of general shapes, the method called integration is used. The definite integral is the key tool in calculus for defining and calculating many important quantities, such as areas, volumes, lengths of curved paths, probabilities, averages, energy consumption, etc. 6. Furthermore, students are expected to learn how to find the area under a curve and the area between two curves, solids of revolution, etc. 7. Finally, students are expected to deal with the transcendental functions: Inverse Function and their Derivatives, Natural Logarithms, Exponential Functions, Inverse Trigonometric Functions, and Hyperbolic Functions.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Read different technical books and lecture notes. 2. Students should learn the principle of Mathematics I (Algebra and Calculus I) 3. Understand the rules and regulations for this type of course. 4. Solving and simplifying Equations and Functions 5. Understand the problem and turn it into real mathematical problem. 6. Students should be able to solve the equality and inequality of the equations successfully. 7. Students should be able to solve practical problems. 8. Students should be able to find the limits and then check whether the function is continuous or not. Then, student has to be able to see the behavior of the function when it reaches to infinity in both sides. 9. Students should be able to derive the function and finding Derivative Formulas, Higher Order Derivatives, Related Rates, Critical Points, Minimum and Maximum Values, Increasing/Decreasing Functions, Inflection Points, Concavity, Optimization, etc. 10. Students should be able to integrate the function and finding areas, volumes, lengths of curved paths, probabilities, averages, energy consumption, etc. 11. Students has to be able to deal with the inverse function and their derivative. Also, it has the ability to deal with the natural logarithms, exponential function, trigonometric functions, etc. 12. Students will learn to deal with the transcendental functions. 13. Students should be able to search for topics online and make reports.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Chapter 1: Brief review:** Set, Relations, Intervals, Functions, Range, Domain, and Absolute value. Coordinates and Graphs in Plane, A Slope and An Equation of A Line, Trigonometric Functions (Identities, Domain, Range, etc.) [8 hrs]

	Chapter 2: Limits: Limit of a Functions, Limit Laws, Eliminating Zero Denominators Algebraically, and Sandwich Theorem. Approaching a Limit from One Side, Continuity and Discontinuity, Limits Involving Infinity, and Asymptote of a Graph. [8 hrs] **Chapter 3: Differentiation:** Definition, Slopes and Tangent Lines, Differentiation Rules, Derivatives of Trigonometric Functions, and Chain Rule. High Order Derivatives, Implicit Differentiation, Minima and Maxima , and Derivative as a Rate of Change. [12 hrs] **Chapter 4: Applications of Derivatives:** Extreme Values of Functions, The Mean Value Theorem, Monatomic Functions and the First Derivative Test. [6 hrs] **Chapter 5: Integration:** Definition, Properties, Integration of Trigonometric Functions, Finite Sum, and Sigma Notation. Definite Integral, Definite Integral Rules, and Fundamental Theorem of Integration. [12 hrs] **Chapter 6: Applications of Integrations:** Areas between Curves, and Volumes, Arc Length, and Surface Area of Revolution. [8 hrs] **Chapter 7: Transcendental Functions:** Inverse Function and their Derivatives, Natural Logarithms, Exponential Functions, Inverse Trigonometric Functions, and Hyperbolic Functions. [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	In this module "Mathematics I", various learning and teaching strategies will be implemented to enhance students' understanding and engagement. Some common strategies are listed below: ➢ **Visualization**: Visualization is a useful technique to **process** or **summarize** the knowledge that has been instructed in class. When students receive the information through **visual means,** they are more able to retain both the previous learning and new information for a longer time. **Visualization** is also a helpful learning process

for lower-attaining learners to receive the information in a simpler, clear and systematic way. Thus, an effective teacher would use visual tools such as flow charts, graphic organizers, concept maps, etc.

- **Teamwork:** Dividing the class into groups to complete a task is a teaching strategy**.** It is recommended to encourage students of mixed abilities to work with one another. By doing so, those who have more knowledge of the subject can share their knowledge and help their peers understand the topic better.

- **Inquiry-Based Teaching:** Encouraging students to ask a lot of questions is an effective teaching strategy that does not only motivate students to think more practically but also helps them to become independent learners. **Inquiry-Based learning** motivates students to ask questions and work with one another to solve any problem.

- **Implementing Technology in the Classroom:** Using technology in the classroom is a valuable tool that prepares students to learn 21st-century skills. Use of PowerPoint presentations, videos, virtual classrooms, robots and augmented reality (AR) does not only add liveliness to the classroom but may also lead to a more inclusive and effective learning environment that improves inquisitiveness and collaboration between the students and allow educators to compile data on student performance.

- **Assessments and Feedback:** Integrating formative assessment strategies in the classroom. Regular assessments, such as quizzes, assignments, and exams, can be used to evaluate students' understanding and progress. Constructive feedback helps students identify areas for improvement and reinforces their learning.

- **Critical Thinking:** Advancing critical thinking skills, using graphic organizers to help students organize their thinking, is another way of learning strategies. Provide playful learning experiences that promote divergent thinking.

- **Personalized learning or Self-Learning:** Since students are not exactly alike, **personalized learning** builds a learning experience that addresses the *unique abilities of each student.*

- **Link mathematics to real-life problems**: A common thought that many math's students have is along the lines of "when is this theorem ever used in real life situations?". Whenever possible, use a relevant topical example where the theory taught was applied.

Implementing these learning and teaching strategies in the module of "Mathematics" will help students to understand the module very well and faster. Hence, employing these techniques in module of "Mathematics" will led to accomplish the aim

	of the module faster.

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	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	5	25% (25)	3, 5, 8, 12	LO # 4, 6, 8, and 9
	Assignments	2	5% (5)	13, 14	LO # 9, 10, 11, and 12
	Projects / Lab.	NA	NA	NA	
	Report	1	10% (10)	15	LO # 4, 6, 8, 9, 10, 11, and 12
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8 or 9	LO # 4, 6, 8, and 9
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Brief review:** Set, Relations, Intervals, Functions, Range, Domain, and Absolute value.
Week 2	**Brief review:** Coordinates and Graphs in Plane, A Slope and An Equation of A Line, Trigonometric Functions (Identities, Domain, Range, etc.)
Week 3	**Limits:** Limit of a Functions, Limit Laws, Eliminating Zero Denominators Algebraically, and Sandwich Theorem.

Week 4	**Limits:** Approaching a Limit from One Side, Continuity and Discontinuity, Limits Involving Infinity, and Asymptote of a Graph.
Week 5	**Differentiation:** Definition, Slopes and Tangent Lines, Differentiation Rules, Derivatives of Trigonometric Functions, and Chain Rule.
Week 6	**Differentiation:** High Order Derivatives and Implicit Differentiation
Week 7	**Differentiation:** Minima and Maxima , and Derivative as a Rate of Change. **Applications of Derivatives:** Extreme Values of Functions.
Week 8	**Mid Term Exam. Applications of Derivatives:** The Mean Value Theorem, and Monatomic Functions and the First and second Derivative Test.
Week 9	**Integration:** Definition, Properties, Integration of Trigonometric Functions, Finite Sum, and Sigma Notation.
Week 10	**Integration:** Definite of indefinite Integral. Indefinite Integral Rules and their properties.
Week 11	**Integration:** Definite Integral, Definite Integral Rules, and Fundamental Theorem of Integration
Week 12	**Applications of Integrations:** Areas between Curves, and Volumes.
Week 13	**Applications of Integrations:** Arc Length, and Surface Area of Revolution.
Week 14	**Transcendental Functions:** Inverse Function and their Derivatives, Natural Logarithms, and Exponential Functions.
Week 15	**Transcendental Functions:** Inverse Trigonometric Functions, and Hyperbolic Functions.
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Hass, Joel, Christopher Heil, Maurice D. Weir, and George B. Thomas, *Thomas' calculus*, Pearson, thirteen Edition. 2. Courant, Richard, and Fritz John, *Introduction to calculus and analysis I*, Springer Science & Business Media, 2012.	Yes
Recommended Texts	1. Stewart, James, Daniel K. Clegg, and Saleem Watson, *Calculus: early transcendentals*, Cengage Learning, 2020. 2. Jerrold Marsden and Alan Weinstein, *Calculus I*, Second	Yes

	Edition, Springer-Verlag New York Berlin Heidelberg	
Websites	https://tutorial.math.lamar.edu/	

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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Basics of Electrical Engineering I**			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOBAB 0103012				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Electrical Engineering		**College**	College of Engineering	
Module Leader	Dr. Saad Saffah Hreshee		**e-mail**	eng.saad.saffah@uobabylon.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr. Saad Saffah Hreshee		**e-mail**	eng.saad.saffah@uobabylon.edu.iq	
Peer Reviewer Name	Dr. Hassen Jassim		**e-mail**	hassan.jasim@uobabylon.edu.iq	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module "Basics of Electrical Engineering" aims to provide students with a fundamental understanding of the principles, concepts, and applications of electrical engineering. The specific aims of this module are the following objectives are targeted: 1. Introduction to Electrical Engineering: The module aims to introduce students to the field of electrical engineering, its historical background, and its significance in various technological applications. 2. Circuit Analysis: Students are taught the fundamentals of circuit analysis, including Ohm's Law, Kirchhoff's Laws, network theorems (such as Thevenin's and Norton's theorem), and techniques for solving simple and complex circuits. 3. DC Circuits: The module aims to provide an understanding of direct current (DC) circuits, including the behavior of passive circuit elements like resistors. Students will learn how to analyze and solve circuits involving DC sources. 4. Electric Power Systems: The module covers the basics of electric power systems. 5. Basic Electrical Measurements: Students will be introduced to different electrical measurement techniques and instruments, including voltmeters, ammeters, oscilloscopes, and multimeters. They will learn how to make accurate measurements of voltage, current, and resistance in electrical circuits. 6. Basic Electrical Measurements: Students will be introduced to different electrical measurement techniques and instruments, including voltmeters, ammeters, oscilloscopes, and multimeters. They will learn how to make accurate measurements of voltage, current, and resistance in electrical circuits. 7. Problem-Solving Skills: Through practical examples, assignments, and laboratory work, the module aims to develop students' problem-solving skills in electrical engineering. They will learn how to apply theoretical concepts to solve real-world electrical engineering problems. Overall, the module "Basics of Electrical Engineering" aims to provide students with a solid foundation in electrical engineering principles, preparing them for more advanced topics and practical applications in the field.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the module "Basics of Electrical Engineering," students are expected to achieve the following learning outcomes: 1. Understanding of Electrical Principles: Students should demonstrate a solid understanding of the fundamental principles and concepts of electrical engineering, including Ohm's Law, Kirchhoff's Laws, network theorems, and basic circuit analysis techniques. 2. Competence in Circuit Analysis: Students should be able to analyze and solve simple

	and complex electrical circuits using appropriate techniques and tools. They should be able to calculate voltages, currents, and power dissipation in circuits accurately. 3. Ability to Make Electrical Measurements: Students should be able to use electrical measurement instruments, such as voltmeters, ammeters, and oscilloscopes, to make accurate measurements of voltage, current, and resistance in electrical circuits. They should understand measurement techniques and be capable of interpreting measurement results. 4. Awareness of Safety and Standards: Students should be aware of electrical safety practices and understand the importance of following safety guidelines in electrical engineering. 5. Problem-Solving Skills: Students should demonstrate the ability to apply their knowledge of electrical engineering principles to solve practical problems. They should be able to identify and analyze electrical engineering problems, develop appropriate solution strategies, and effectively communicate their solutions. 6. Critical Thinking and Analytical Skills: Students should develop critical thinking and analytical skills through the module, enabling them to evaluate and interpret electrical engineering concepts, principles, and data. They should be able to think logically and make informed decisions in solving electrical engineering problems. 7. Teamwork and Communication: Students should have opportunities to work in teams and develop effective communication skills. They should be able to collaborate with others, share knowledge, and present their ideas and solutions clearly and concisely. By achieving these learning outcomes, students will have a strong foundation in the basics of electrical engineering, enabling them to pursue further studies in the field or apply their knowledge in various engineering disciplines and industries.
Indicative Contents المحتويات الإرشادية	**Part A - DC Circuit Theory** Basic concepts and units, basic DC circuits Laws, [12 hrs]. Current and voltage definitions, Current and voltage sources, [12 hrs]. dependent and non-dependent Current and voltage sources [12 hrs]. Passive circuit elements, Combining resistive elements in series and parallel, [12 hrs]. Ohm's law, [11 hrs]. **Part B – DC Circuit Analysis** Kirchhoff's laws, [11 hrs]. Mesh and Nodal analysis, [11 hrs]. Superposition theorem, Source transformation, [11 hrs]. Thevenin and Norton analysis Methods, [11 hrs]. Maximum power transfer, [11 hrs]. Millman's theorem, reciprocity theorem, [11 hrs].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The module "Basics of Electrical Engineering" can employ various learning and teaching strategies to enhance students' understanding and engagement. Here are some common strategies used in this module: 1. Lectures: Lectures are a primary teaching method in this module, where instructors deliver theoretical concepts, principles, and explanations. Lectures can include visual aids such as slides, diagrams, and animations to facilitate understanding. Instructors may also provide real-life examples and applications to make the content more relatable. 2. Practical Examples and Problem-Solving: Instructors can use practical examples and problem-solving exercises to help students apply theoretical concepts to real-world situations. By presenting and solving problems related to electrical circuits, students can develop critical thinking and analytical skills. 3. Laboratory Work: Laboratory sessions provide hands-on experience and reinforce theoretical concepts. Students can perform experiments and measurements using electrical components and instruments. This allows them to apply theoretical knowledge, gain practical skills, and understand the behavior of electrical systems in a controlled environment. 4. Group Discussions and Collaborative Learning: Group discussions and collaborative learning activities encourage students to engage actively in the learning process. Students can work together to solve problems, analyze case studies, or discuss challenging concepts. This promotes peer learning, critical thinking, and communication skills. 5. Tutorials and Workshops: Tutorials and workshops offer opportunities for students to seek additional help and clarification on specific topics. Instructors or teaching assistants can provide individual or small-group assistance, address students' questions, and guide them through problem-solving exercises. 6. Multimedia and Interactive Tools: Multimedia resources, such as videos, animations, and interactive simulations, can be used to enhance understanding and engage students. These resources can provide visual representations of abstract concepts and allow students to interact with the content, fostering active learning. 7. Guest Lectures and Industry Visits: Inviting guest speakers from industry or conducting visits to electrical engineering-related facilities can provide students with

	real-world perspectives and insights. Professionals can share their experiences, current trends, and practical applications, giving students a broader understanding of the field. 8. Assessments and Feedback: Regular assessments, such as quizzes, assignments, and exams, can be used to evaluate students' understanding and progress. Constructive feedback helps students identify areas for improvement and reinforces their learning. Feedback can be provided through written comments, discussions, or one-on-one consultations. 9. Online Resources and Platforms: Online resources, such as e-learning platforms, online forums, and educational websites, can support student learning outside the classroom. These resources can provide additional readings, practice exercises, and interactive modules to supplement classroom teaching. 10. Self-directed Learning: Encouraging students to take ownership of their learning through self-directed study is important. Students can explore additional resources, conduct independent research, and deepen their understanding of specific topics. This cultivates lifelong learning skills and promotes curiosity in the field of electrical engineering. By combining these learning and teaching strategies, the module "Basics of Electrical Engineering" aims to create an interactive and engaging learning environment that caters to different learning styles, promotes critical thinking, and prepares students for further studies and professional practice in electrical engineering.

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	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.133
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Basics of Network Elements
Week 2	Current and voltage sources, (dependent and non-dependent)
Week 3	Resistance and Resistivity, Combining resistive elements in series and parallel
Week 4	Ohm's Law
Week 5	Kirchhoff's Laws
Week 6	Circuit Analysis - Nodal and Mesh
Week 7	Circuit Analysis – Super Node and Super Mesh
Week 8	**Mid-term Exam +** Linearity and Superposition
Week 9	Linearity and Superposition
Week 10	Source Transformations
Week 11	Thévenin Equivalent circuits
Week 12	Norton Equivalent circuits
Week 13	maximum power transfer
Week 14	Millman's theorem

Week 15	reciprocity theorem
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, 4th edition, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	Introduction to Circuit Analysis, 10th edition, Boylestad .	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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Electronics Physics			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103013**				
ECTS Credits	**4**				
SWL (hr/sem)	100				
Module Level		1	**Semester of Delivery**		1
Administering Department		Electrical Engineering	**College**	Engineering collage	
Module Leader	Sameer Abdul Kadhim Alrufaiaat		**e-mail**	eng.samir.abdul@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		MS.c
Module Tutor	Sameer Abdul Kadhim Alrufaiaat		**e-mail**	eng.samir.abdul@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Hassan Jasim	**e-mail**	hassan.jasim@uobabylon.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

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

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of this modules 1- The module aims to equip students with basic principles of material and how its deal with energy to remove the ambiguity in understanding the complex work of electrical appliances which will physical in subsequent years 2-It is the basic concepts and terminology for understanding semiconductors. Of particular importance are the concepts of energy band, the two kinds of electrical charge carriers called electrons and holes, and how the carrier concentrations can be controlled with the addition of dopants. Another group of valuable facts and tools is the Fermi distribution function and the concept of the Fermi level. The electron and hole concentrations are closely linked to the Fermi level. 3-This module introduces several devices that are formed by joining two different materials together. PN junction and metal–semiconductor junction are analyzed in the forward-bias and reverse-bias conditions. Of particular importance are the concepts of the depletion region and minority carrier injection. Solar cells and light-emitting diode are presented in some detail because of their rising importance for renewable energy generation and for energy conservation through solid-state lighting, respectively. 4-This module introduces the bi polar junction transistor (BJT) operation and then presents the theory of the bipolar transistor I-V characteristics, current gain, and output conductance. High-level injection and heavy doping induced band narrowing are introduced. Si ,Ge transistor, transit time, and cutoff voltage are explained. Several bipolar transistor models are introduced, i.e. , Ebers–Moll model, small-signal model, and charge control model. Each model has its own areas of applications
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On completion of this module students are expected to: • Understand and be able to apply physics and electronics concepts. • Possess skills relevant to physics and electronics, e.g. experimental design and experimental technique. • Be able to demonstrate skills in mathematical analysis and problem solving.. • Be sufficiently prepared for undertaking the module Physics and Electronics II.

	• Students should be able to analysis electrical circuits successfully. • Students should be able to solve practical problems. • Students should be able to design electrical circuits and networks based on data given. • Students should be able to search topics online and make reports.
Indicative Contents المحتويات الإرشادية	

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

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
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	20% (10)	5 , 10	LO # 3 and 4, 8 and 9
	Assignments	2	10% (10)	6 , 12	LO # 4 and 5, 10 and 11

	Projects / Lab.	0			
	Report	1	10% (10)	13	Continuous
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Atomic Structure and Energy Levels
Week 2	Hydrogen Atom Model
Week 3	Photoelectric Effect
Week 4	De-Broglie Theory and Einstein's Photoelectric Equation
Week 5	Energy Bands Theory
Week 6	Energy Distribution of Electrons in Conductors
Week 7	Mid Term Examination + Electrical Conduction in Metals
Week 8	Intrinsic Semiconductor
Week 9	N and P-Types Semiconductor
Week 10	P-N Junction
Week 11	Forward and Reverse Biases Junction
Week 12	Capacitance of P-N Junction
Week 13	Diode Application
Week 14	Special Diodes and There Application
Week 15	Bipolar Junction Transistor
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	**Mid-term Exam**
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Solid State Electronic Devices, Ben G. Streetman 2- Electronic Devices and Circuits, Millimans	Yes
Recommended Texts	1- Physics for Scientists and Engineers, Serway. 2- Semiconductor Physics & Devices, Donald A. Neamen	No
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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Computers I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103014**				
ECTS Credits	**2**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	**Electrical engineering**		**College**	**College of Engineering**	
Module Leader	**Dr. Hanaa Mohsin Ali**		**e-mail**	hanaa.ali@uobabylon.edu.iq	
Module Leader's Acad. Title	**assistant prof.**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Dr. Hanaa Mohsin Ali**		**e-mail**	Hanaa.ali@uobabylon.edu.iq	
Peer Reviewer Name	**Dr. Hassen Jassim**		**e-mail**	hassan.jasim@uobabylon.edu.iq	
Scientific Committee Approval Date	**01/06/2023**		**Version Number**	**1.0**	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course provides an in-depth analysis of the fundamental principles of computer science. The exposition of these principles is fully reinforced by many practical problems that illustrate the concepts discussed. 1. Beginning with precise and quantitative information about computer science origin and development. 2. Study the representation of data inside the computer system. 3. Understand the concept of data processing. 4. Study how the data transfer from outside to inside the computer system. 5. Define and describe computer information theory. 6. Define and describe the computer system and its parts. 7. Describe and understand the differences among the number of computer operating systems. 8. Clarealy understand and studies (MS-DOS and Windows). 9. Use Windows system and its applications. 10. Apply Microsoft Office (Word, Excel and PowerPoint). 11. Define Network and Internet (services and terminologies). 12. Introduce a mini project about what they learned from the lectures they got.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the module " Principles of Computers I ", students are expected to achieve the following learning outcomes: 1. Study the representation of data inside the computer system. 2. Understand the concept of data processing. 3. Study how the data transfer from outside to inside the computer system. 4. Define and describe computer information theory. 5. Define and describe the computer system and its parts. 6. Describe and understand the differences among the number of computer operating systems. 7. Understand the software applications (Ms. Word, ms. excel and PowerPoint

Indicative Contents المحتويات الإرشادية	**Part 1:** Beginning with precise and quantitative information about computer science origin and development. Study the representation of data inside the computer system. Understand the concept of data processing. Study how the data transfer from outside to inside the computer system. Define and describe computer information theory. Define and describe the computer system and its parts. Describe and understand the differences among the number of computer operating systems. Clarealy understands and studies (MS-DOS and Windows). Use Windows system and its applications. Understand the software applications (Ms. Word, ms. excel and PowerPoint. Define Network and Internet (services and terminologies). Introduce a mini project about what they learned from lectures they got [30 hrs]. **Part 2:** Operating system – MS-DOS system (create a directory, change a directory and delete a directory). Operating System - Windows 2010 (log on, introduce desktop, change time and date, taskbar, notification area and change computer personnel). Operating System - Windows 2010 (create folder, copy folder, delete folder, change folder name, and start menu). Microsoft Office – MS Word (access MS-word, screen layout, cursor, using the keyboard in MS-word, create new doc., open doc., text, selecting text and formatting text) as well as for MS- excel and PowePoint [30 hrs].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Learning Technologies on Campus using Whiteboard and TV monitor. 2. Hand out lecture notes. 3. Video lectures on YouTube and google classroom.

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	2.466
Total SWL (h/sem)	100		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	5, 7 and 15	LO # 1, 2 and 3
	Assignments	3	10% (10)	5, 7 and 15	LO # 1, 2 and 3
	Projects	3	15% (10)	Continuous	
	Report	1	5% (10)	14	Continuous
Summative assessment	Midterm Exam	2 hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction to a computer system** (definition, functionalities and types of computers)
Week 2	**Basic parts of a computer system** (hardware- CPU, input devices, output devices, memory and software-system, application)
Week 3	**Operating system – MS-DOS system** (log in, type commands, error-command, read directory and display directory contents)
Week 4	Operating system – MS-DOS system (create a directory, change a directory and delete a directory)
Week 5	Operating System - Windows 2010 (log on, introduce desktop, change time and date, taskbar, notification area and change computer personalize)
Week 6	Operating System - Windows 2010 (create folder, copy folder, delete folder, change folder name, and start menu).
Week 7	Microsoft Office – MS Word (access MS-word, screen layout, cursor, using the keyboard in MS-word, create new doc., open doc., text, selecting text and formatting text)
Week 8	**Mid-term Exam +** Microsoft Office – MS Word (MS-office bottom, text alignment, copy and paste, save text and doc., and print)

Week 9	Microsoft Office – MS Word (insert table, change table style, insert a text box, change style, insert the picture, insert shapes, insert a symbol, insert blank page and formatting page)
Week 10	Microsoft Office – MS Excel (Understand the use of spreadsheets and Excel, parts of the Excel window, Create and save a workbook file, Enter text, numbers, and dates into a worksheet)
Week 11	Microsoft Office – MS Excel (Insert, and remove columns and rows, insert formulas and functions, Insert, delete, move, and rename worksheets, Preview and print a workbook)
Week 12	Microsoft Office – MS-PowerPoint (Familiarize with the workspace, Name and save the presentation, add, rearrange, and delete slides, apply a new layout to a slide and Enter text on a slide)
Week 13	Microsoft Office – MS-PowerPoint (Adding Transition to the slides, using background (themes), Adding clip art, previewing your presentation, Print slides
Week 14	Mini Project Presentation (Introduce mini project of PowerPoint + paper sheet containing some of the texts in Word)
Week 15	Introduction to the Internet (Define Network, define Internet, Internet services, Internet Terminology and searching the Web)
Week 16	**A preparatory week before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Operating system – MS-DOS system (log in, type commands, error-command, read directory and display directory contents)
Week 2	Operating system – MS-DOS system (create a directory, change a directory and delete a directory)
Week 3	Operating the computer, shut down, folder, file, menu, icons
Week 4	Windows, bars, tabs, Deskbar
Week 5	Operating System - Windows 2010, introduce desktop, change time and date, taskbar, notification area and change computer personnel.
Week 6	Operating System - Windows 2010 (create folder, copy folder, delete folder, change folder name, and start menu).
Week 7	Microsoft Office – MS Word (access MS-word, screen layout, cursor, using the keyboard in MS-word, create new doc., open doc., text, selecting text and formatting text)
Week 8	**Mid-term Exam +** Microsoft Office – MS Word (MS-office bottom, text alignment, copy and paste,

	save text and doc., and print)
Week 9	Microsoft Office – MS Word (insert table, change table style, insert a text box, change style, insert the picture, insert shapes, insert a symbol, insert blank page and formatting page)
Week 10	Microsoft Office – MS Excel (Understand the use of spreadsheets and Excel, parts of the Excel window, Create and save a workbook file, Enter text, numbers, and dates into a worksheet)
Week 11	Microsoft Office – MS Excel (Insert, and remove columns and rows, insert formulas and functions, Insert, delete, move, and rename worksheets, Preview and print a workbook)
Week 12	Microsoft Office – MS-PowerPoint (Familiarize with the workspace, Name and save the presentation, add, rearrange, and delete slides, apply a new layout to a slide and Enter text on a slide)
Week 13	Microsoft Office – MS-PowerPoint (Adding Transition to the slides, using background (themes), Adding clip art, previewing your presentation, Print slides
Week 14	Mini Project Presentation (Introduce mini project of PowerPoint + paper sheet containing some of the texts in Word)
Week 15	Introduction to the Internet (Define Network, define Internet, Internet services, Internet Terminology and searching the Web)
Week 16	**Introduction to a computer system** (definition, functionalities and types of computers)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	1. Principles of Computer Science by Salem Press, 2016 2. Great Principles of Computing by Peter J. Denning	no
Recommended Texts	1. Elements of Information Theory, T. M. Cover and J. A. Thomas JOHN WILEY & SONS, INC., 1991.	no
Websites	https://edu.gcfglobal.org/en/computerbasics/understanding-operating-systems/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 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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electrical Engineering Laboratories I**			**Module Delivery**	
Module Type	Related Learning Activity			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	UOBAB 0103016				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		1	**Semester of Delivery**		1
Administering Department		Electrical Engineering	**College**	College of Engineering	
Module Leader	Dr. Saad Saffah Hreshee		**e-mail**	eng.saad.saffah@uobabylon.edu.iq	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Intisar Hamid		**e-mail**	eng.intisar.hamid@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Hilal Abdul-Hussain Abbood	**e-mail**	eng.hilala.abbood@uobabylon.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	Basics of Electrical Engineering I (UOBAB0103012)	**Semester**	1

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module "Electrical Engineering Laboratories I" aims to provide students with a fundamental understanding of the principles, concepts, and applications of electrical engineering. The specific aims of this module are the following objectives are targeted: 8. Basic Electrical Measurements: Students will be introduced to different electrical measurement techniques and instruments, including voltmeters, ammeters, oscilloscopes, and multimeters. They will learn how to make accurate measurements of voltage, current, and resistance in electrical circuits. 9. Basic Electrical Measurements: Students will be introduced to different electrical measurement techniques and instruments, including voltmeters, ammeters, oscilloscopes, and multimeters. They will learn how to make accurate measurements of voltage, current, and resistance in electrical circuits. 10. Problem-Solving Skills: Through practical examples, assignments, and laboratory work, the module aims to develop students' problem-solving skills in electrical engineering. They will learn how to apply theoretical concepts to solve real-world electrical engineering problems. Overall, the module "Electrical Engineering Laboratories I" aims to provide students with a solid foundation in electrical engineering applications, preparing them for more advanced topics and practical applications in the field.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the module "Basics of Electrical Engineering," students are expected to achieve the following learning outcomes: 8. Understanding of Electrical Principles: Students should demonstrate a solid understanding of the fundamental principles and concepts of electrical engineering, including Ohm's Law, Kirchhoff's Laws, network theorems, and basic circuit analysis techniques by applying it practically. 9. Ability to Make Electrical Measurements: Students should be able to use electrical measurement instruments, such as voltmeters, ammeters, and oscilloscopes, to make accurate measurements of voltage, current, and resistance in electrical circuits. They

	should understand measurement techniques and be capable of interpreting measurement results. 10. Awareness of Safety and Standards: Students should be aware of electrical safety practices and understand the importance of following safety guidelines in electrical engineering. 11. Problem-Solving Skills: Students should demonstrate the ability to apply their knowledge of electrical engineering principles to solve practical problems. They should be able to identify and analyze electrical engineering problems, develop appropriate solution strategies, and effectively communicate their solutions. 12. Teamwork and Communication: Students should have opportunities to work in teams and develop effective communication skills. They should be able to collaborate with others, share knowledge, and present their ideas and solutions clearly and concisely. By achieving these learning outcomes, students will have a strong foundation in the basics of electrical engineering, enabling them to pursue further studies in the field or apply their knowledge in various engineering disciplines and industries.
Indicative Contents المحتويات الإرشادية	**Part A - DC Circuit Theory** Basic concepts and units, basic DC circuits Laws, [7 hrs]. Current and voltage definitions, Current and voltage sources, [7 hrs]. dependent and non-dependent Current and voltage sources [7 hrs]. Passive circuit elements, Combining resistive elements in series and parallel, [7 hrs]. Ohm's law, [5 hrs]. **Part B – DC Circuit Analysis** Kirchhoff's laws, [7 hrs]. Mesh and Nodal analysis, [7 hrs]. Superposition theorem, Source transformation, [7 hrs]. Thevenin and Norton analysis Methods, [7 hrs]. Maximum power transfer, [7 hrs]. Millman's theorem, reciprocity theorem, [7 hrs].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The module "Basics of Electrical Engineering" can employ various learning and teaching strategies to enhance students' understanding and engagement. Here are some common strategies used in this module: 11. Practical Examples and Problem-Solving: Instructors can use practical examples and problem-solving exercises to help students apply theoretical concepts to real-world

	situations. By presenting and solving problems related to electrical circuits, students can develop critical thinking and analytical skills. 12. Laboratory Work: Laboratory sessions provide hands-on experience and reinforce theoretical concepts. Students can perform experiments and measurements using electrical components and instruments. This allows them to apply theoretical knowledge, gain practical skills, and understand the behavior of electrical systems in a controlled environment. 13. Group Discussions and Collaborative Learning: Group discussions and collaborative learning activities encourage students to engage actively in the learning process. Students can work together to solve problems, analyze case studies, or discuss challenging concepts. This promotes peer learning, critical thinking, and communication skills. 14. Tutorials and Workshops: Tutorials and workshops offer opportunities for students to seek additional help and clarification on specific topics. Instructors or teaching assistants can provide individual or small-group assistance, address students' questions, and guide them through problem-solving exercises. 15. Multimedia and Interactive Tools: Multimedia resources, such as videos, animations, and interactive simulations, can be used to enhance understanding and engage students. These resources can provide visual representations of abstract concepts and allow students to interact with the content, fostering active learning. 16. Guest Lectures and Industry Visits: Inviting guest speakers from industry or conducting visits to electrical engineering-related facilities can provide students with real-world perspectives and insights. Professionals can share their experiences, current trends, and practical applications, giving students a broader understanding of the field. 17. Assessments and Feedback: Regular assessments, such as quizzes, assignments, and exams, can be used to evaluate students' understanding and progress. Constructive feedback helps students identify areas for improvement and reinforces their learning. Feedback can be provided through written comments, discussions, or one-on-one consultations. 18. Online Resources and Platforms: Online resources, such as e-learning platforms, online forums, and educational websites, can support student learning outside the classroom. These resources can provide additional readings, practice exercises, and interactive modules to supplement classroom teaching. 19. Self-directed Learning: Encouraging students to take ownership of their learning through self-directed study is important. Students can explore additional resources, conduct independent research, and deepen their understanding of specific topics.

	This cultivates lifelong learning skills and promotes curiosity in the field of electrical engineering. By combining these learning and teaching strategies, the module "Basics of Electrical Engineering" aims to create an interactive and engaging learning environment that caters to different learning styles, promotes critical thinking, and prepares students for further studies and professional practice in electrical engineering.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	28	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.867
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	5	20% (10)	3, 6, 9, 12, 15	LO # 1,2,4,5,7,8,10,11, 13 and 14
	Report	15	20% (10)	Continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Understanding the operation of measurement devices

Week 2	Lab 2: Electrical Circuit Measurements
Week 3	Lab 3: Resistor Code
Week 4	Lab 4: Ohm's Law
Week 5	Lab 5: Kirchhoff's Laws
Week 6	Lab 6: Nodal Analysis
Week 7	Lab 7: Mesh Analysis
Week 8	**Mid-term Exam**
Week 9	Lab 8: Superposition Theorem
Week 10	Lab 9: Thevenin's Theorem
Week 11	Lab 10: Max. Power Transfer
Week 12	Lab 11: Millman's Theorem
Week 13	Lab 12: Substitution Theorem
Week 14	Lab 13: Reciprocity Theorem
Week 15	Lab 14: Compensation Theorem
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, 4th edition, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	Introduction to Circuit Analysis, 10th edition, Boylestad .	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.

MODULE 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	**UOBAB 0103016**				
ECTS Credits	**4**				
SWL (hr/sem)	100				
Module Level		1	**Semester of Delivery**		1
Administering Department		Electrical engineering	**College**	College of Engineering	
Module Leader	Dr. Sarmad Khaleel Ibrahim		**e-mail**	Sarmad.ibrahim@uobabylon.edu.iq	
Module Leader's Acad. Title		Asst. Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Dr. Hanaa Mohsin Ali		**e-mail**	Hanaa.ali@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Hassen Jassim	**e-mail**	hassan.jasim@uobabylon.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The main objectives of the course are: 1. Pronunciation and Phonetics: • Learn the pronunciation of English sounds, including vowels, and consonants. 2. Reading Comprehension: • Improve reading skills to identify the main idea of a text. • Enhance scanning techniques to locate specific information in a text. • Develop inference skills to understand implied meanings and draw conclusions. 3. Writing Skills: • Develop writing skills for different purposes and audiences, including essays, reports, and letters. • Practice organizing ideas logically and coherently in written form. • Enhance grammar and vocabulary usage for effective written communication. 4. Listening Comprehension: • Enhance listening skills to understand spoken English in various contexts. • Practice listening for specific information and understanding implicit messages. 5. Speaking Skills: • Develop oral communication skills for general, social, and professional purposes. • Practice effective verbal communication strategies, such as turn-taking and maintaining a conversation. • Enhance fluency, accuracy, and pronunciation in spoken English. 6. Vocabulary and Grammar: • Expand vocabulary range through the study of word families, collocations, and idiomatic expressions. • Enhance understanding and application of English grammar rules and structures. • Practice using appropriate vocabulary and grammar in speaking and writing tasks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A student who has successfully completed this course should be able to: 1. Grammar and Language Use: • Demonstrate proficiency in producing and reviewing grammatical forms of English. • Apply the learned grammar rules and structures appropriately in various communicative contexts. • Use grammar accurately in class activities, homework assignments,

	reading texts, and writing tasks. 2. Reading Comprehension: • Read and comprehend university-level texts with improved understanding. • Expand their vocabulary through reading and engage with complex academic texts. • Apply reading strategies to extract information, infer meaning, and analyze content. 3. Speaking Skills: • Demonstrate improved speaking ability in terms of fluency and comprehensibility. • Engage in effective communication using appropriate vocabulary, grammar, and pronunciation. • Express ideas, opinions, and arguments clearly and confidently in both formal and informal settings. 4. Writing Skills: • Write a simple paragraph that includes a clear topic sentence, supporting details, and a concluding sentence. • Organize ideas coherently and logically in written assignments. • Apply appropriate vocabulary, grammar, and sentence structures to express ideas effectively. 5. Oral Presentations: • Deliver an oral presentation in class using academic strategies. • Organize and structure the presentation with a clear introduction, body, and conclusion. • Employ appropriate verbal and non-verbal communication techniques to engage the audience.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1- Grammer Skills: Parts of speech and Text Book. 2- Reading Comprehension Skills: Articles and Text Book. 3- Writing Skills: Brainstorming and Text Book. 4- Listening Skills: Videos and Text Book. 5- Individual and group oral presentations.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Communicative Approach: Emphasize communication and interaction in English through activities such as role-plays, discussions, debates, and group work.

	2. Task-Based Learning: Design activities and tasks that simulate real-life situations, allowing students to apply language skills to achieve specific goals. 3. Authentic Materials: Incorporate authentic materials such as newspaper articles, podcasts, videos, and excerpts from books to expose students to real-world language use. 4. Language Practice: Provide ample opportunities for students to practice speaking and writing in English. Encourage pair work, group discussions, and presentations to promote fluency and build confidence. 5. Error Correction and Feedback: Provide constructive feedback on students' language use, both oral and written, to help them improve their accuracy and fluency. 6. Vocabulary and Grammar Development: Integrate explicit vocabulary and grammar instruction into lessons. Use techniques like contextualization, word families, and collocations to help students grasp new vocabulary. Break down complex grammar structures and provide ample practice opportunities for reinforcement. 7. Technology Integration: Utilize technology tools and resources to enhance language learning. Incorporate online language-learning platforms, multimedia resources, language learning apps, and interactive websites to engage students and provide additional practice opportunities. 8. Cultural Awareness: Integrate cultural elements into the curriculum to enhance students' understanding of the target language's cultural context. This can include discussing cultural practices, traditions, and perspectives, and exploring literature, films, and music from English-speaking countries. 9. Assessment and Reflection: Implement a variety of assessment methods, including quizzes, exams, presentations, projects, and portfolios, to assess students' language proficiency.

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	2.466
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**	3	10% (10)	5, 9,13	LO # 1-4, 5-8, and 9-12
	Assignments	3	10% (10)	4,8, 12	LO # 1-3, 5-7 and 8-11
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	Continuous
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introductions and Review of Syllabus.
Week 2	Grammer Skills: Parts of speech: Noun, Pronoun, Verb. Unit 1,2 and 3 in Text Book
Week 3	Grammer Skills: Parts of speech: Adjective, Preposition, Conjunction. Unit 4 and 5 in Text Book
Week 4	Reading Comprehension Skills: Articles. Unit 6,7 and 8 in Text Book
Week 5	Grammer Skills: Present and Past, Simple and Progressive (Continuous) and Units 9, 10 and 11 in Text Book.
Week 6	Writing Skills: Brainstorming, Freewriting, Editing and Revising and Unit 12, 13 and 14 in Text Book.
Week 7	Individual and group oral presentations
Week 8	**Mid-term Exam**
Week 9	Grammer Skills: Noun, Pronoun, Verb. Parts of speech: Adjective, Preposition, Conjunction Reading Comprehension, Unit 1 and 2 in Text Book
Week 10	Grammer Skills: Where and when?, Articles, Listening skills. Unit 3. Present and Past, Simple,

	and Progressive (Continuous). Verb patterns, future forms. Unit 4 and 5.
Week 11	Reading Comprehension and Grammer skills: What... like?, Comparatives and superlatives. Synonyms and antonyms, Directions, Present Perfect and past, for, since, Adverbs, Short answers—units 6 and 7.
Week 12	Grammer Skills: Have(got) to, should/must Reading Comprehension and Time Clause, Going out Reading Comprehension, grammar skill, future, first condition. Units 8 and 9.
Week 13	Grammer Skills: verb forms2. Used to, -ed/ - ing adjectives, second conditions, PASSIVE, reading comprehension, Work-life balance Individual and group oral presentations. Reading activities are done individually, in pairs, and in groups. Units 10, 11, and 12.
Week 14	Writing Skills: Brainstorming, Freewriting, Editing and Revising. Units 13 and 14 in Text Book.
Week 15	Individual and group oral presentations
Week 16	**The preparatory week before the Final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	1- New Headway Plus (Beginner Student's Book) by John and Liz Soars 2- New Headway Plus (Pre-Intermediate Student's Book English course) by John and Liz Soars	yes
Recommended Texts	1- Fundamental of English Grammar by Betty S. Azar and Stacy A. Hagen 2- Fundamental of English Grammar, third edition by Betty Schrampfer Azar.	No
Websites	https://www.cambridgeenglish.org/learning-english https://writingmentor.com https://ed.ted.com	

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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics II**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103021**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		1	**Semester of Delivery**		2
Administering Department		ELEC	**College**	ENG	
Module Leader	Ahmed Qasim Jumaah ALdhahab		**e-mail**	Ahmedalthahab82@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Ahmed Qasim Jumaah ALdhahab		**e-mail**	Ahmedalthahab82@uobabylon.edu.iq	
Peer Reviewer Name		Sameer Abdul Kadhim Alrufaiaat	**e-mail**	eng.samir.abdul@uobabylon.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**Mathematics I (UOBAB 0103011)**	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	8. Students are expected to learn how to do the following: Integration by Parts, Integrals Involving Trig Functions, Trig Substitutions, Integration using Partial Fractions, Integrals Involving Roots, Integrals Involving Quadratics, Integration Strategy, Improper Integrals, Comparison Test for Improper Integrals, and Approximating Definite Integrals. 9. Knowing different types of numbers are very important. One of the most important one is the complex number. 10. Solving Equations and Inequalities - Linear Equations, Quadratic Equations, Completing the Square, Quadratic Formula, Applications of Linear and Quadratic Equations, etc. 11. Students are expected to learn how to deal with matrices in terms of finding the equality of Matrices, arithmetic operations: addition, subtraction, Multiplication (scalar and multi-matrices), Cofactor, adjoint of a square matrix, Transpose of Matrices, special matrices, computing Inverse square matrices. 12. Hyperbolic functions: Derivatives and Integration. Application for Hyperbolic functions in Sag Analysis, Evaluating the values of Inverse hyperbolic functions, Definition, identities, domain, range, Graphs. 13. Students are expected to learn how to deal with the vectors in terms of vector notation, scalar and vector quantities, vectors in space, scalar product of two vectors, cross product of two vectors, angle between two vectors. 14. Finally, students are expected to learn how to deal with the parametric Equations and Polar Coordinates - Parametric Equations & Curves, Calculus with Parametric Equations (Tangents, Areas, Arc Length and Surface Area), Polar Coordinates, Calculus with Polar Coordinates (Tangents, Areas, Arc Length and Surface Area).
Module Learning	14. Read different technical books and lecture notes. 15. Students should learn the principle of Mathematics II (Algebra and Calculus II) 16. Understand the rules and regulations for this type of course. 17. Solving and simplifying Equations and Functions. 18. Understand the problem and turn it into real mathematical problem. 19. Students should be able to solve practical problems.

Outcomes مخرجات التعلم للمادة الدراسية	20. Students should be able to find the integral of the function by using different integration techniques. 21. Students should be able to classify numbers and deal with real and complex numbers and apply all the arithmetic operations to all types of numbers. 22. Student should be able to solve equations in different order. 23. Students are expected to learn how to deal with matrices in terms of finding the equality of Matrices, arithmetic operations: addition, subtraction, Multiplication (scalar and multi-matrices), Cofactor, adjoint of a square matrix, Transpose of Matrices, special matrices, computing Inverse square matrices. 24. Students are expected to deal with the hyperbolic functions. In this part, give the relationships between hyperbolic functions and some of the basic facts involving hyperbolic functions. The derivatives of each of the six hyperbolic functions are illustrated in this part. 25. Students are expected to learn how to deal with the vectors in terms of vector notation, scalar and vector quantities, vectors in space, scalar product of two vectors, cross product of two vectors, angle between two vectors 26. Students are expected to learn how to deal with the parametric Equations and Polar Coordinates - Parametric Equations & Curves, Calculus with Parametric Equations (Tangents, Areas, Arc Length and Surface Area), Polar Coordinates, Calculus with Polar Coordinates (Tangents, Areas, Arc Length and Surface Area). 27. Students should be able to search for topics online and make reports.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Chapter 1: Methods of Integration**: Integration by Part, finite integration by part, Trigonometric Substitution, Partial fraction factorization, Integration of rational Partial fractions, completing a square method, improper integrals, applications of proper and improper integrals in electrical circuits, applications of integrals on area calculation using integration methods. [16 hrs] **Chapter 2: Complex Numbers:** Definition, properties, and arithmetic operations, evaluation in polar form (modules and argument), applications of complex numbers in electrical circuits: calculation of complex current, voltages and power. determinants, determinants notation, determinants of second and third order, properties of determinants. [8 hrs]

	Chapter 3: Solving Equations: Definition Simultaneous equations in three unknowns using determinants, consistency test of a set of equations. [6 hrs] **Chapter 4: Matrices:** notations, equality of Matrices, arithmetic operations: addition, subtraction, Multiplication (scalar and multi-matrices), Properties of matrices, Cofactor, adjoint of a square matrix, Transpose of Matrices, special matrices, computing Inverse square matrices. [8 hrs] **Chapter 5: Hyperbolic functions:** Derivatives and Integration. Application for Hyperbolic functions in Sag Analysis. **Inverse Hyperbolic Function:** Evaluating the values of Inverse hyperbolic functions, Definition, identities, domain, range, Graphs. **Inverse Hyperbolic Function:** Derivatives, finite and infinite Integration, Application of Inverse hyperbolic functions in Electrical prospective. [8 hrs] **Chapter 6: Vectors:** vector notation, scalar and vector quantities, vectors in space, scalar product of two vectors, cross product of two vectors, angle between two vectors. [8 hrs] **Chapter 7: Polar Coordinates:** graphing polar coordinates, test of symmetry for polar graphs. Cardiographs, flower graphs with various number vertices, Equations relating polar and Cartesian coordinates, Calculation of length for a polar curve. [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	In this module "Mathematics I", various learning and teaching strategies will be implemented to enhance students' understanding and engagement. Some common strategies are listed below: ➢ **Visualization**: Visualization is a useful technique to **process** or **summarize** the knowledge that has been instructed in class. When students receive the information through **visual means,** they are more able to retain both the previous learning and new information for a longer time. **Visualization** is also a helpful learning process for lower-attaining learners to receive the information in a simpler, clear and

systematic way. Thus, an effective teacher would use visual tools such as flow charts, graphic organizers, concept maps, etc.

- **Teamwork:** Dividing the class into groups to complete a task is a teaching strategy**.** It is recommended to encourage students of mixed abilities to work with one another. By doing so, those who have more knowledge of the subject can share their knowledge and help their peers understand the topic better.

- **Inquiry-Based Teaching:** Encouraging students to ask a lot of questions is an effective teaching strategy that does not only motivate students to think more practically but also helps them to become independent learners. **Inquiry-Based learning** motivates students to ask questions and work with one another to solve any problem.

- **Implementing Technology in the Classroom:** Using technology in the classroom is a valuable tool that prepares students to learn 21st-century skills. Use of PowerPoint presentations, videos, virtual classrooms, robots and augmented reality (AR) does not only add liveliness to the classroom but may also lead to a more inclusive and effective learning environment that improves inquisitiveness and collaboration between the students and allow educators to compile data on student performance.

- **Assessments and Feedback:** Integrating formative assessment strategies in the classroom. Regular assessments, such as quizzes, assignments, and exams, can be used to evaluate students' understanding and progress. Constructive feedback helps students identify areas for improvement and reinforces their learning.

- **Critical Thinking:** Advancing critical thinking skills, using graphic organizers to help students organize their thinking, is another way of learning strategies. Provide playful learning experiences that promote divergent thinking.

- **Personalized learning or Self-Learning:** Since students are not exactly alike, **personalized learning** builds a learning experience that addresses the *unique abilities of each student.*

- **Link mathematics to real-life problems**: A common thought that many math's students have is along the lines of "when is this theorem ever used in real life situations?". Whenever possible, use a relevant topical example where the theory taught was applied.

Implementing these learning and teaching strategies in the module of "Mathematics" will help students to understand the module very well and faster. Hence, employing these techniques in module of "Mathematics" will led to accomplish the aim of the module faster.

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	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	5	25% (25)	3, 5, 8, 12	LO # 7, 8, 10, and 12
	Assignments	2	5% (5)	13, 14	LO # 7 and 8, 10 and 11
	Projects / Lab.	NA	NA	NA	
	Report	1	10% (10)	15	LO # 7, 8, 9, 10, 11, 12, and 13
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8 or 9	LO # 7, 8, 9, and 10
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Brief review:** Basic trigonometric function integration, Application of Integration.

Week 2	Methods of Integration: Integration by Part, finite integration by part, Trigonometric Substitution.
Week 3	**Methods of Integrations:** Partial fraction factorization, Integration of rational Partial fractions, completing a square method.
Week 4	**Methods of Integrations:** Improper integrals, Applications of proper and improper integrals in Electrical circuits, applications of integrals on area calculation using integration methods.
Week 5	**Complex Numbers:** Definition, Properties, and Arithmetic Operations.
Week 6	**Complex numbers:** Evaluation in polar form (modules and argument), applications of Complex numbers in Electrical circuits: calculation of Complex current, voltages and power. Determinants, determinants notation, determinants of second and third order, properties of determinants.
Week 7	**Solving Equations:** Simultaneous equations in three unknowns using determinants, consistency test of a set of equations.
Week 8	**Matrices:** notations, equality of Matrices, arithmetic operations: addition, subtraction, Multiplication (scalar and multi-matrices).
Week 9	**Mid Term Exam.** Properties of matrices, Cofactor, adjoint of a square matrix, Transpose of Matrices, special matrices, computing Inverse square matrices.
Week 10	**Hyperbolic functions:** Derivatives and Integration. Application for Hyperbolic functions in Sag Analysis.
Week 11	**Inverse Hyperbolic Function:** Evaluating the values of Inverse hyperbolic functions, Definition, identities, domain, range, Graphs.
Week 12	**Inverse Hyperbolic Function:** Derivatives, finite and infinite Integration, Application of Inverse hyperbolic functions in Electrical prospective.
Week 13	**Vectors:** vector notation, scalar and vector quantities, vectors in space, scalar product of two vectors, cross product of two vectors, angle between two vectors.
Week 14	**Polar Coordinates:** graphing polar coordinates, test of symmetry for polar graphs.
Week 15	**Polar Coordinates:** Cardiographs, flower graphs with various number vertices, Equations relating polar and Cartesian coordinates, Calculation of length for a polar curve.
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	3. Hass, Joel, Christopher Heil, Maurice D. Weir, and George B. Thomas, *Thomas' calculus*, Pearson, thirteen Edition. 4. Courant, Richard, and Fritz John, *Introduction to calculus and analysis I*, Springer Science & Business Media, 2012.	Yes
Recommended Texts	3. Stewart, James, Daniel K. Clegg, and Saleem Watson, *Calculus: early transcendentals*, Cengage Learning, 2020. 4. Jerrold Marsden and Alan Weinstein, *Calculus I*, Second Edition, Springer-Verlag New York Berlin Heidelberg	Yes
Websites	https://tutorial.math.lamar.edu/	

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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Basics of Electrical Engineering II**	**Module Delivery**	
Module Type	Core		☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**UOBAB 0103022**		
ECTS Credits	5		
SWL (hr/sem)	125		

Module Level	1	**Semester of Delivery**	2
Administering Department	Electrical Engineering	**College**	College of Engineering
Module Leader	Dr. Saad Saffah Hreshee	**e-mail**	Eng.saad.saffah@uobabylon.edu.iq
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Saad Saffah Hreshee	**e-mail**	Eng.saad.saffah@uobabylon.edu.iq
Peer Reviewer Name	Dr. Kasim Karamm Abdalla	**e-mail**	eng.kassim.kerem@uobabylon.edu.iq
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Basics of Electrical Engineering I (**UOBAB 0103012**)	**Semester**	1
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 module "Basics of Electrical Engineering II" aims to provide students with a comprehensive understanding of the principles, concepts, and applications specific to alternating current (AC) electrical systems. The specific aims of this module are the following objectives: 1. Introduction to AC Electrical Systems: The module aims to introduce students to AC electrical systems. Students will learn about the advantages of AC over DC, the basics of sinusoidal waveforms, and the concept of phasors. 2. AC Circuit Analysis: Students will develop skills in analyzing AC circuits, including passive circuit elements such as resistors, capacitors, and inductors. They will learn about impedance, reactance, and complex numbers in the context of AC circuits. The module aims to equip students with the ability to solve AC circuit problems using phasor analysis and complex algebra. 3. AC Power Analysis: The module aims to provide students with an understanding of power in AC circuits. Students will learn about active power, reactive power, and apparent power, as well as power factor and power factor correction techniques. The module will cover the analysis of power in single-phase and three-phase AC systems. 4. Laboratory Skills: The module includes laboratory sessions where students can apply theoretical concepts to practical situations. Students will gain hands-on experience in AC circuit analysis, power measurement, and the use of relevant laboratory instruments and equipment. Overall, the module "Basics of Electrical Engineering II" aims to provide students with a strong foundation in the principles and applications of AC electrical systems. It equips them with the necessary knowledge and skills to analyze AC circuits, understand power generation. This knowledge will be valuable in various industries such as power systems, renewable energy, electrical equipment manufacturing, and automation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the module "Basics of Electrical Engineering II" students are expected to achieve the following learning outcomes: 1. Understanding of AC Electrical Principles: Students should demonstrate a solid understanding of the principles and concepts specific to AC electrical systems, including sinusoidal waveforms, phasors, impedance, and reactance. 2. Competence in AC Circuit Analysis: Students should be able to analyze and solve AC circuits using phasor analysis and complex algebra. They should be able to calculate voltage, current, power, and other parameters in AC circuits accurately. 3. Knowledge of AC Power Analysis: Students should have a good understanding of power in AC circuits, including active power, reactive power, and apparent power. They should be able to calculate power factor and understand power factor correction techniques. 4. Laboratory Skills: Students should have developed practical skills through laboratory sessions. They should be able to apply theoretical concepts to practical situations, including AC circuit analysis, power measurement, and the use of laboratory instruments and equipment. 5. Critical Thinking and Problem-Solving Skills: Students should have developed critical

	thinking and problem-solving skills specific to AC electrical engineering. They should be able to analyze and solve complex AC electrical engineering problems, identify and evaluate different solution strategies, and make informed decisions. 6. Communication and Presentation Skills: Students should be able to effectively communicate their ideas, solutions, and findings related to AC electrical engineering. They should be capable of presenting technical information clearly and concisely, both orally and in written form. By achieving these learning outcomes, students will have a strong foundation in AC electrical engineering principles and applications. They will be prepared to further their studies or apply their knowledge in various industries such as power systems, renewable energy, electrical equipment manufacturing, and automation, where AC electrical systems are prevalent.
Indicative Contents المحتويات الإرشادية	**Part A - AC Circuit Theory** Basic concepts of AC circuits, Current and voltage definitions, Passive circuit elements (resistance, capacitance, and inductance) , Capacitor, [11 hrs]. Magnetic circuits, Electromagnetic induction and inductor, [11 hrs]. Sinusoidal alternating waveforms, Root-mean-square (R.M.S.) and Average values , [11 hrs]. Phasors and complex number representation, Phasor relationships for circuit elements, [11 hrs]. Combining resistive, capacitive, and inductive elements in series and parallel, [11 hrs]. **Part B – AC Circuit Analysis** Sinusoidal steady-state analysis, Kirchhoff's laws in the frequency domain, [10 hrs]. Nodal and Mesh Analysis, [10 hrs]. Superposition theorem, [10 hrs]. Thévenin and Norton Equivalent circuits , [10 hrs]. AC power analysis, active and reactive power, [10 hrs]. The complex power and power triangle, [10 hrs]. Resonance, [10 hrs].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The module "Basics of Electrical Engineering" can employ various learning and teaching strategies to enhance students' understanding and engagement. Here are some common strategies used in this module: 20. Lectures: Lectures are a primary teaching method in this module, where instructors deliver theoretical concepts, principles, and explanations. Lectures can include visual aids such as slides, diagrams, and animations to facilitate understanding. Instructors may also provide real-life examples and applications to make the content more relatable. 21. Practical Examples and Problem-Solving: Instructors can use practical examples and problem-solving exercises to help students apply theoretical concepts to real-world situations. By presenting and solving problems related to electrical circuits, students can develop critical thinking and analytical skills. 22. Laboratory Work: Laboratory sessions provide hands-on experience and reinforce theoretical concepts. Students can perform experiments and measurements using electrical components and instruments. This allows them to apply theoretical knowledge, gain practical skills, and understand the behavior of electrical systems in a controlled environment. 23. Group Discussions and Collaborative Learning: Group discussions and collaborative learning activities encourage students to engage actively in the learning process. Students can work together to solve problems, analyze case studies, or discuss challenging concepts. This promotes peer learning, critical thinking, and communication skills. 24. Tutorials and Workshops: Tutorials and workshops offer opportunities for students to seek additional help and clarification on specific topics. Instructors or teaching assistants can provide individual or small-group assistance, address students' questions, and guide them through problem-solving exercises. 25. Multimedia and Interactive Tools: Multimedia resources, such as videos, animations, and interactive simulations, can be used to enhance understanding and engage students. These resources can provide visual representations of abstract concepts and allow students to interact with the content, fostering active learning. 26. Guest Lectures and Industry Visits: Inviting guest speakers from industry or conducting visits to electrical engineering-related facilities can provide students with real-world perspectives and insights. Professionals can share their experiences, current trends, and practical applications, giving students a broader understanding of the field. 27. Assessments and Feedback: Regular assessments, such as quizzes, assignments, and exams, can be used to evaluate students' understanding and progress. Constructive

	feedback helps students identify areas for improvement and reinforces their learning. Feedback can be provided through written comments, discussions, or one-on-one consultations. 28. Online Resources and Platforms: Online resources, such as e-learning platforms, online forums, and educational websites, can support student learning outside the classroom. These resources can provide additional readings, practice exercises, and interactive modules to supplement classroom teaching. 29. Self-directed Learning: Encouraging students to take ownership of their learning through self-directed study is important. Students can explore additional resources, conduct independent research, and deepen their understanding of specific topics. This cultivates lifelong learning skills and promotes curiosity in the field of electrical engineering. By combining these learning and teaching strategies, the module "Basics of Electrical Engineering" aims to create an interactive and engaging learning environment that caters to different learning styles, promotes critical thinking, and prepares students for further studies and professional practice in electrical engineering.

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	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.133
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Capacitors
Week 2	Magnetic circuits
Week 3	Electromagnetic induction and inductor
Week 4	Sinusoidal alternating waveforms
Week 5	Root-mean-square (R.M.S.) and Average values
Week 6	Phasors and complex number representation
Week 7	Phasor relationships for circuit elements
Week 8	**Mid-term Exam +** Introduction to Sinusoidal steady-state analysis
Week 9	Sinusoidal steady-state analysis, Kirchhoff's laws in the frequency domain
Week 10	Sinusoidal steady-state analysis, Nodal and Mesh Analysis
Week 11	Sinusoidal steady-state analysis, Superposition theorem
Week 12	Sinusoidal steady-state analysis, Thévenin and Norton Equivalent circuits
Week 13	AC power analysis, active and reactive power
Week 14	The complex power and power triangle
Week 15	Resonance
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, 4th edition, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	Introduction to Circuit Analysis, 10th edition, Boylestad .	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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	Digital Techniques	**Module Delivery**	
Module Type	**Core learning activity**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103023**		
ECTS Credits	**6**		
SWL (hr/sem)	150		

Module Level	1	**Semester of Delivery**	2
Administering Department	Electrical Engineering	**College**	Engineering collage
Module Leader	Qais Kareem Omran	**e-mail**	eng.qais.karem@uobabylon.edu.iq
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	PhD
Module Tutor	Dr. Qais Kareem Omran	**e-mail**	eng.qais.karem@uobabylon.edu.iq
Peer Reviewer Name	Dr. Saad Saffah	**e-mail**	eng.saad.saffah@uobabylon.edu.iq
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of this modules a) Distinguish between digital and analog system. b) Acquire knowledge about decimal and binary number systems and the conversion between each other in additional to binary arithmetic. c) Learn about the Hexadecimal, Octal and Binary coded decimal (BCD). d) Understand basic concepts of logic operations and Boolean algebra laws and its theorems. e) Able to simplify Boolean expressions with methods of Sums-of-Products (SOP) and Product-of-sums (POS) forms. f) Convert between Standard SOP and POS. g) Construct Karnaugh map and how to minimize it. h) Understand the basics of Adders, Comparator, Decoders, Encoders, multiplexer and Demultiplexer. i) Learn about Latches and Flip-Flops and their functionalities. j) Understand and design counters (synchronous and asynchronous) and shift registers.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On completion of this module students are expected to: 1: Students should be able to understand the basics of digital and analog system. 2: Students should be able to comprehend the number systems and be able to deal with Binary, Hexadecimal, Octal and Binary coded decimal. 3: Students should be able to solve problems about number base conversion and arithmetic operation in different system of numbers. 4: Student are expected to learn the basic concepts, operation, and truth tables of the digital logic gates. 5: Students are expected to learn the basic definitions, basic theorem, rules, and properties of Boolean algebra and how to perform simplification of Boolean expressions with the help of rules of Boolean algebra. 6: Students are expected to learn how to deal with Sum of Products form (SOP) and Product of Sum form (POS). 7: Students are expected to learn how to deal with Karnaugh mapping techniques and its applications for simplification of Boolean expression. 8: Students are expected to learn the basics of adders, Adders, Comparator, Decoders, Encoders, multiplexer, Demultiplexer, Latches, Flip-Flops, counters and shift registers. 9. Students should be able to search for topics online and make reports.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **PART (1)**: Introduction to Digital and Analogue systems, Digital representation, Advantages of digital, Digital waveforms, Decimal and binary number systems, Binary to Decimal Conversion and vice versa, Binary Arithmetic, Hexadecimal Numbers, Octal Numbers, Binary Coded Decimal (BCD) [10 hrs.] **PART (2)**: Basic logic operations, Basic logic gates, Logic circuit diagrams, Laws and theorems of Boolean Algebra, DeMorgan's Theorem, Boolean expression reduction, Truth table, Sums-of-products (SOP) and Product-of-sums (POS) and their standard forms, Conversion of SOP to POS and vice versa, Construction of a truth table from SOP and POS forms and vice versa [12 hrs.] **PART (3)**: Karnaugh Maps, variables in Karnaugh Maps (3 and 4 variables), cell adjacency in Karnaugh Maps, Mapping truth table into Karnaugh Map, Mapping SOP and POS forms into Karnaugh Map, Finding the minimum SOP and POS forms using Karnaugh Map [12 hrs.] **PART (4)**: Binary arithmetic operation, Half and Full adder, Parallel binary adders, Ripple Carry adder, Comparators, Decoders, Encoders, Multiplexers and Demultiplexers [8 hrs.] **PART (5)**: Introduction to Latches and Flip-flops, the logic circuit and operation of Set Reset Latch (SR Latch), The logic circuit and operation of Data Latch (D Latch), The logic circuit and operation of Jack Kilby Latch (JK Latch), The gated latches, Latches applications, Edge triggered Flip-flops and their types, Flip-flops applications, Introduction to Counters and shift registers. Introduction to the types of Counters and shift registers [15hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering 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 # 3 and 4, 7 and 8
	Assignments	2	10% (10)	6 , 12	LO # 4 and 5, 9 and 10
	Lab.	2	20% (20)	Continuous	
	Report				
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-8
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Brief review: The basic concepts of digital techniques, the difference between analog and digital signals, the advantages of digital systems, the digital systems applications, and the basic definitions of the digital techniques.
Week 2	System of numbers: decimal, binary, octal, and hexadecimal, numbers base conversion and arithmetic operation in different system of numbers.
Week 3	Number base conversion and arithmetic operation in different system of numbers.

	The concepts of complements, Binary codes, binary coded decimal (BCD).
Week 4	Binary arithmetic: addition subtraction, multiplication, and division.
Week 5	The basic concepts, operation, and truth tables of the digital logic gates and the pulse operation of logic gates.
Week 6	The basic definitions, basic theorem, rules, and properties of Boolean algebra.
Week 7	The simplification of Boolean expressions with the help of rules of Boolean algebra (part 1)
Week 8	Mid Term Examination + The simplification of Boolean expressions with the help of rules of Boolean algebra (Part 2 and Demorgan's theorems).
Week 9	Introduction to the Sum of Products form (SOP) and Product of Sum form (POS).
Week 10	The basic concepts of Karnaugh mapping techniques.
Week 11	The applications of Karnaugh mapping techniques for simplification of Boolean expression.
Week 12	Basic adders (Half and full adders), parallel binary adders and comparator.
Week 13	The basic concepts of Decoders, Encoders, multiplexer, and Demultiplexer.
Week 14	The basic concepts of Latches and Flip-Flops
Week 15	The basic concepts of Counters and shift registers.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Basic introduction
Week 2	The basic concepts and operation of the digital logic gates (part1)
Week 3	The basic concepts and operation of the digital logic gates (part2)
Week 4	The basic concepts of truth tables
Week 5	The basic concepts of Binary arithmetic
Week 6	The rules of Boolean algebra
Week 7	Demorgan's theorems
Week 8	**Mid-term Exam +** The basic concepts of Sum of Products form (SOP)
Week 9	The basic concepts of Product of Sum form (POS)

Week 10	The basic concepts of Karnaugh mapping techniques (part1)
Week 11	The basic concepts of Karnaugh mapping techniques (part2)
Week 12	The basic concepts of Half and full adders.
Week 13	The basic concepts of Decoders, Encoders, multiplexer, and Demultiplexer
Week 14	The basic concepts of Flip-Flops
Week 15	The basic concepts of Counters and shift registers
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Digital Fundamentals, 9th edition, Thomas L. Floyd.	Yes
Recommended Texts	1-Introduction to Logic Design, 3rd Edition, Alan B. Marcovitz.	No
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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Computers II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103024**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		**1**	**Semester of Delivery**		2
Administering Department		**Electrical engineering**	**College**	**College of Engineering**	
Module Leader	**Dr. Hanaa Mohsin Ali**		**e-mail**	hanaa.ali@uobabylon.edu.iq	
Module Leader's Acad. Title		**Assistant Professor**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	**Dr. Hanaa Mohsin Ali**		**e-mail**	Hanaa.ali@uobabylon.edu.iq	
Peer Reviewer Name		**Dr. Kasim Karamm Abdalla**	**e-mail**	eng.kassim.kerem@uobabylon.edu.iq	
Scientific Committee Approval Date		**01/06/2023**	**Version Number**	**1.0**	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course provides an in-depth analysis of the fundamental principles of computer science that focus on problem-solving methods. The exposition of these principles is fully reinforced by many practical problems that illustrate the concepts discussed. 13. The skills goals are special to the course. 14. Students should be able to understand the analysis of computer science and problem-solving methods successfully. 15. Students should be able to solve practical problems. 16. Students should be able to understand and use different types of problem-solving techniques such as Algorithms and flowcharts. 17. Students should be able to search topics online and make reports. Study how can employ problem-solving techniques to sort out real-time problems. 18. Define and describe algorithms. 19. Define and describe flowcharts. 20. Define and describe Pseudocode. 21. Practical examples for applying problem-solving methods in different fields such as engineering. 22. Studying and understanding programming languages. 23. Understanding visual basics as a high-level programming language. 24. Understand the visual basics of window structures and contents. 25. Understand read and write constants and variables 26. Built a system using visual basics. 27. Understand the loop and if statement
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. applying problem-solving methods in different fields such as engineering. 2. Studying and understanding programming languages. 3. Understanding visual basics as a high-level programming language. 4. Understand the visual basics structures and contents. 5. read and write constants and variables in visual basic 6. Built a system using visual basics. 7. Understand the loop and if statements.
Indicative Contents المحتويات الإرشادية	**Part 1:** Study how can employ problem-solving techniques to sort out real-time problems. Define and describe algorithms. Define and describe

	flowcharts. Define and describe Pseudocode. Practical examples for applying problem-solving methods in different fields such as engineering. Studying and understanding programming languages. Understanding visual basics as a high-level programming language [20 hrs.]. **Part 2:** Understand the visual basics of window structures and contents. Understand read and write constants and variables. Built a system using visual basics. Understand the loop and if statement [17 hrs.].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	4. Learning Technologies on Campus using Whiteboard and TV monitor. 5. Hand out lecture notes. 6. Video lectures on YouTube and google classroom.

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	2.466
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**	3	10% (10)	5, 7 and 15	LO # 1, 2 and 3
	Assignments	3	10% (10)	5, 7 and 15	LO # 1, 2 and 3
	Projects/Lab	3	20% (10)	Continuous	
	Report				

Summative assessment	**Midterm Exam**	2 hrs.	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to computer programming** (definition, functionalities)
Week 2	**Problem-solving and information theory**
Week 3	**Operating system – MS-DOS system** (log in, type commands, error-command, read directory and display directory contents)
Week 4	Problem-solving methods
Week 5	Algorithms and their characteristics and rules
Week 6	flowcharts and their characteristics and rules
Week 7	Pseudocode and their characteristics and rules
Week 8	**Mid-term Exam +** examples about apply the problem-solving methods in mathematical fields
Week 9	Applying problem-solving methods in engineering fields
Week 10	Examples about flowcharting
Week 11	Example about algorithms
Week 12	Transfer an algorithm to a flowchart and verse versa
Week 13	Compare the algorithm and flowchart, which one is better for problem-solving
Week 14	Applying advanced examples using problem-solving techniques
Week 15	Transfer the algorithm into the program and transfer the flowchart into the program.
Week 16	**A preparatory week before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction of visual basic
Week 2	Understanding the visual basic structure

Week 3	Read and write functions in coding
Week 4	Variables and constants
Week 5	Great blocks for simple program
Week 6	Solve mathematical examples using visual basics
Week 7	Build a simple interface in visual basic
Week 8	**Mid-term Exam**
Week 9	Understand the counter
Week 10	Applying 'for loop statements
Week 11	Applying the 'while statement'
Week 12	Applying the 'if statement'
Week 13	Solve some advanced problems using for loop and if statement
Week 14	Practice different types of engineering and math example
Week 15	Revision
Week 16	Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	1- Programming and Problem Solving: An Introduction to Computer Science by David A. Freitag (Author) 2- Visual Basic in easy steps, 6th edition: Updated for Visual Basic 2019 Kindle Edition by Mike McGrath	no
Recommended Texts	1- Algorithmic Problem Solving, 7 October 2011 by Roland Backhouse (Author)	no
Websites	https://www.edrawsoft.com/explain-algorithm-flowchart.html	

Grading Scheme
مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	**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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Mechanical Engineering**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**UOBAB0103025**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		Electrical Engineering	**College**		Engineering College
Module Leader	Mr. mohammed Yousif Jabbar		**e-mail**		eng.mohammed.yousif@uobabylon.edu.iq
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		PhD
Module Tutor	Mr. mohammed Yousif Jabbar		**e-mail**		eng.mohammed.yousif@uobabylon.edu.iq
Peer Reviewer Name		N.A	**e-mail**		N.A.
Scientific Committee Approval Date		1/06/2023	**Version Number**		1.0

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

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- To learn the basic quantities and idealizations of mechanics. 2- To learn expressing forces and position in Cartesian vector form and explaining how to determine the vector's magnitude and direction. 3- To learn the concept of the free-body diagram for a particle and rigid body and equilibrium problems. 4- To learn finding moments, couples, and resultants. 5- To analyze the forces in the truss, frames, and machines. 6- To learn finding the centroid of the 1D, 2D, and 3D figures and bodies. 7- To learn the concept of dry friction and how to analyze the equilibrium of rigid bodies subjected to this force such as wedges, screw, and belts. 8- To learn determining the moment of inertia for different 2D shapes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students would have the ability to analyze forces, moments and resultants in 2D and 3D structures. 2. Students would have the ability to draw the free body diagram of any structure. 3. Students intended to have the ability of analyzing the forces in the trusses and frames. 4. Learning how to find the centroid of different shapes and volumes. 5. Learning the types of friction and its applications in the mechanical engineering field. 6. Learning how to find the moment of inertia of different shapes.
Indicative Contents المحتويات الإرشادية	1-Basic Concepts, Scalars and Vectors Newton's Laws, Units, and Law of Gravitation [4 hrs] 2-Force, TWO-DIMENSIONAL FORCE SYSTEMS, Rectangular Components, Moment, Couple, and Resultants [6 hrs] 3-THREE-DIMENSIONAL FORCE SYSTEMS, Rectangular Components, Moment and Couple, and Resultants [8 hrs] 4-EQUILIBRIUM IN TWO DIMENSIONS, System Isolation and the Free-Body Diagram, Equilibrium Conditions, EQUILIBRIUM IN THREE DIMENSIONS, and Equilibrium Conditions [8 hrs]

	5-Plane Trusses, Method of Joints, Method of Sections, and Frames and Machines [10 hrs] 6-CENTERS OF MASS AND CENTROIDS, Center of Mass, Centroids of Lines, Areas, and Volumes Composite Bodies and Figures, and Approximations [8 hrs] 7-FRICTIONAL PHENOMENA, Types of Friction, Dry Friction, and APPLICATIONS OF FRICTION IN MACHINES, Wedges, Screws, and Flexible Belts [8 hrs] 8-AREA MOMENTS OF INERTIA, Definitions, and Composite Areas [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering 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	6.2
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	**Quizzes**	2	10% (10)	5, 10	LO # 1, 2, 3, and 4

assessment	**Assignments**	2	10% (10)	5, 12	LO # 1, 2, 3 and 5
	workshop	1	10%(10)	continuous	
	Report	1	10% (10)	13	LO # 1-5
Summative assessment	**Midterm Exam**	2 hrs	10% (10)	10	LO # 1-4
	Final Exam	3 hrs	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Basic Concepts Scalars and Vectors Newton's Laws Units Law of Gravitation
Week 2	Force TWO-DIMENSIONAL FORCE SYSTEMS Rectangular Components Moment Couple Resultants
Week 3	THREE-DIMENSIONAL FORCE SYSTEMS Rectangular Components Moment and Couple Resultants
Week 4	EQUILIBRIUM IN TWO DIMENSIONS System Isolation and the Free-Body Diagram Equilibrium Conditions
Week 5	EQUILIBRIUM IN THREE DIMENSIONS Equilibrium Conditions
Week 6	Plane Trusses Method of Joints
Week 7	Plane Trusses Method of Sections
Week 8	Frames and Machines
Week 9	FRICTIONAL PHENOMENA Types of Friction Dry Friction
Week 10	Midterm Exam. Dry Friction
Week 11	APPLICATIONS OF FRICTION IN MACHINES (Wedges and Screws)

Week 12	APPLICATIONS OF FRICTION IN MACHINES (Flexible Belts)
Week 13	CENTERS OF MASS AND CENTROIDS Center of Mass Centroids of Lines, Areas, and Volumes
Week 14	CENTROIDS of Composite Bodies and Figures; Approximations
Week 15	Definitions of AREA MOMENTS OF INERTIA and AREA MOMENTS OF INERTIA of Composite Areas
Week 16	Preparatory week before the final Exam

Workshop	Operations
First	Familiarization with workshops and safety measured
Second	Welding
Third	Machining (milling and surfacing)
Fourth	Filing
Fifth	Turnings
six	Casting

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	ENGINEERING MECHANICS-STATICS by J . L . MERIAM and L . G . KRAIGE.	Yes
Recommended Texts	ENGINEERING MECHANICS-STATICS by R. C. Hibbeller	No
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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Principles of Mechanical Engineering**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**UOBAB0103025**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		Electrical Engineering	**College**		Engineering College
Module Leader	Mr. mohammed Yousif Jabbar		**e-mail**		eng.mohammed.yousif@uobabylon.edu.iq
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		PhD
Module Tutor	Mr. mohammed Yousif Jabbar		**e-mail**		eng.mohammed.yousif@uobabylon.edu.iq
Peer Reviewer Name		N.A	**e-mail**		N.A.
Scientific Committee Approval Date		1/06/2023	**Version Number**		1.0

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

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	9- To learn the basic quantities and idealizations of mechanics. 10- To learn expressing forces and position in Cartesian vector form and explaining how to determine the vector's magnitude and direction. 11- To learn the concept of the free-body diagram for a particle and rigid body and equilibrium problems. 12- To learn finding moments, couples, and resultants. 13- To analyze the forces in the truss, frames, and machines. 14- To learn finding the centroid of the 1D, 2D, and 3D figures and bodies. 15- To learn the concept of dry friction and how to analyze the equilibrium of rigid bodies subjected to this force such as wedges, screw, and belts. 16- To learn determining the moment of inertia for different 2D shapes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	7. Students would have the ability to analyze forces, moments and resultants in 2D and 3D structures. 8. Students would have the ability to draw the free body diagram of any structure. 9. Students intended to have the ability of analyzing the forces in the trusses and frames. 10. Learning how to find the centroid of different shapes and volumes. 11. Learning the types of friction and its applications in the mechanical engineering field. 12. Learning how to find the moment of inertia of different shapes.
Indicative Contents المحتويات الإرشادية	1-Basic Concepts, Scalars and Vectors Newton's Laws, Units, and Law of Gravitation [4 hrs] 2-Force, TWO-DIMENSIONAL FORCE SYSTEMS, Rectangular Components, Moment, Couple, and Resultants [6 hrs] 3-THREE-DIMENSIONAL FORCE SYSTEMS, Rectangular Components, Moment and Couple, and Resultants [8 hrs] 4-EQUILIBRIUM IN TWO DIMENSIONS, System Isolation and the Free-Body Diagram, Equilibrium Conditions, EQUILIBRIUM IN THREE DIMENSIONS, and Equilibrium Conditions [8 hrs] 5-Plane Trusses, Method of Joints, Method of Sections, and Frames and

	Machines [10 hrs] 6-CENTERS OF MASS AND CENTROIDS, Center of Mass, Centroids of Lines, Areas, and Volumes Composite Bodies and Figures, and Approximations [8 hrs] 7-FRICTIONAL PHENOMENA, Types of Friction, Dry Friction, and APPLICATIONS OF FRICTION IN MACHINES, Wedges, Screws, and Flexible Belts [8 hrs] 8-AREA MOMENTS OF INERTIA, Definitions, and Composite Areas [5 hrs]

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

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Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
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six	Casting

Learning and Teaching Resources

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نموذج وصف الوحدة

نموذج وصف المادة الدراسية

معلومات الوحدة معلومات المادة الدراسية				
عنوان الوحدة	حرية وديمقراطية		تسليم الوحدة	
نوع الوحدة	B		☐ نظريه ☐ قراءة ☐ المختبر ☒ تعليمي ☐ عملي ☐ الحلقه الدراسيه	
رمز الوحدة	UOBAB 0103046			
ECTS ائتمانات	2			
SWL (ساعة / SEM)	50			
مستوى الوحدة	2	الفصل الدراسي للتسليم	4	
الإدارة الإدارية	قسم الهندسة الكهربائية	الكليه	كلية الهندسة	
قائد الوحدة	رباب ناجي عبد	البريد الإلكتروني	rababab565@gmail.com	
لقب قائد الوحدة	مدرس مساعد	مؤهلات قائد الوحدة	ماجستير	
مدرس الوحدة	رباب ناجي عبد	البريد الإلكتروني	rababab565@gmail.com	
اسم المراجع النظير		البريد الإلكتروني	البريد الإلكتروني	
تاريخ اعتماد اللجنة العلمية	2023/6/1	رقم الإصدار	1.0	

العلاقة مع الوحدات الأخرى العلاقة مع المواد الدراسية الأخرى			
وحدة المتطلبات الأساسية		الفصل الدراسي	

وحدة المتطلبات المشتركة		الفصل الدراسي	

أهداف الوحدة ونتائج التعلم والمحتويات الإرشادية أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
أهداف المادة الدراسية	1. تطوير مهارات حل المشكلات وفهم ماينص علية الدستور والقانون . 2. لفهم حقوق الانسان بشكل واضح . 3. يتناول هذا المساق المفهوم الأساسي لحقوق الانسان . 4. هذا هو الموضوع الأساسي لحقوق الانسان والديمقراطية . 5. لفهم القوانين وكيفية استثمارها
مخرجات التعلم للوحدة **مخرجات التعلم للمادة الدراسية**	13. التعرف على كيفية على حقوق الخاصة . 14. لخص المقصود بحقوق الانسان . 15. مناقشة انواع حقوق الانسان . 16. وصف انواع حقوق الانسان 17. حدد قانون حقوق الانسان 18. التعرف على كيفية معرفة حقو ق الانسان . 19. ناقش الوسائل القانونية لحماية حقوق الانسان . 20. ناقش الوسائل القضائية لحماية حقوق الانسان . 21. اشرح جرائم حزب البعث المنحل . 22. تحديد علاقة حقوق الانسان والديمقراطية .
المحتويات الإرشادية	يتضمن المحتوى الإرشادي ما يلي. **<u>الجزء أ –حقوق الانسان</u>** مفهوم حقوق الانسان _ تعريف الحق – عناصر الحق او اركان الحق انواع الحقوق التي يحميها القانون – تنصيف انواع حقوق الانسان . [ساعتان] مفهوم حقوق الانسان وفق الاعلان العالمي لحقوق الانسان والمواطن الفرنسي سنة 1798 .(ساعة واحدة) حقوق الانسان والمواطن العراقي وفق دستور جمهورية العراق لسنة 2005 ، الحق في الحياة ، الحق في الكرامة والحرية ، الحق في الكرامة الشخصية ، الحق في الخصوصية ، الحق في الجنسية .(ساعتان)

	وسائل حماية حقوق الانسان يمكن معرفتها عبر الوسائل القانونية لحماية حقوق الانسان المتمثلة بـ الدستور والتشريع العادي الذي يمثلا على سبيل المثال قانون العقوبات ، قانون اصول المحاكمات الجزائية .(ساعتان) ضمانات حقوق الانسان ، رقابة السلطة القضائية على السلطة التشريعية ، رقابة السلطة القضائية على السلطة على اعمال السلطة التنفيذية. (ساعة واحدة) الوسائل السياسية لحقوق الانسان ، على الصعيد الداخلي المتمثلة بـ الاحزاب السياسية ومنظمات المجتمع المدني ، الرأي العام ، على العصيد الدولي الاقليمي ، والمنظمات الغير الحكومية . (ساعة واحدة). حق المشاركة في ادارة الشؤون العامة ، الحقوق العامة تنقسم الى حق التوظيف حق المطالبة السلطات العامة ، حق المساواة ، والحقوق السياسية المتمثلة بـ حق الانتخاب ، حق الترشيح (ساعة واحدة) جرائم التصفية ، تصفية رجال الدين ، تصفية المعارضين ، المقابر الجماعية والاباة الجماعية ، وجرائم الحروب الداخلية والخارجية (ساعتان). **<u>الجزء ب / الديمقراطية</u>** تعريف الديمقراطية اصطلاحاً ، تاريخ الديمقراطية ، الحرية والديمقراطية ، خصائص الديمقراطية المتمثلة بالدستور القانون حرية التعبير عن الرأي ، حرية تكوين الاحزاب السياسية ، استقلال السلطة القضائية .(ساعتان) اركان الديمقراطية المتمثلة بـ الانتخابات ، التسامح السياسي ،سيادة القانون ، حرية التعبير ، المساواة والشفافية ، اللامركزية ، المجتمع المدني (ساعة واحدة). انواع الديمقراطية المتمثلة بـ الديمقراطية الرئاسية ، الديمقراطية البرلمانية ، الاستبدادية ،التشاركية ، التداولية ، الدستورية اللبرالية ، الشمولية .(ساعة واحدة) اهداف الديمقراطية / حماية الحقوق ، المساواة ، الحرية ، حكم الشعب بنفسة ، محاسن الديمقراطية مساؤى الديمقراطية. (ساعة واحدة)

استراتيجيات التعلم والتعليم **استراتيجيات التعلم والتعليم**	
استراتيجيات	يكون الطالب قادراً على تطوير مهارات حل المشكلات وفهم ماينص علية الدستور والقانون .لفهم حقوق الانسان بشكل واضح .يتناول هذا المساق المفهوم الأساسي لحقوق الانسان . هذا هو الموضوع الأساسي لحقوق الانسان والديمقراطية . لفهم القوانين وكيفية استثماره

عبء عمل الطالب (SWL) الحمل الدراسي للطالب			
SWL منظم (h / sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	33	**SWL منظم (ح / ث)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	2
SWL غير منظم (h / sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	17	**SWL غير منظم (ح / ث)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	1.1
إجمالي SWL (h / sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	50		

تقييم الوحدة تقييم المادة الدراسية					
		الوقت/الرقم	**الوزن (بالعلامات)**	**الأسبوع المستحق**	**نتائج التعلم ذات الصلة**
التقييم التكويني	**مسابقات**	3	10% (10)	4,9, 12	LO # All
	تعيينات	3	10% (10)	2,7, 10	LO # 3, 4, 6 and 9
	المشاريع	1	10% (10)	Continuous	
	تقرير	1	10% (10)	13	LO # All
التقييم الختامي	**الامتحان النصفي**	2 hr	10% (10)	8	LO # 1-9
	الامتحان النهائي	3 hr	50% (50)	16	All
التقييم الإجمالي			100% (100 Marks)		

خطة التسليم (المنهج الأسبوعي) المنهاج الاسبوعي النظري	
	المواد المغطاة
الأسبوع 1	مقدمة – حقوق الانسان
الأسبوع 2	تعريف حقوق الانسان
الأسبوع 3	أنواع حقوق الانسان
الأسبوع 4	وسائل حماية حقوق الانسان
الأسبوع 5	الوسائل القانونية لحماية حقوق الانسان
الأسبوع 6	الوسائل القضائية لحقوق الانسان

الأسبوع 7	تصنيف حقوق الانسان
الأسبوع 8	جرائم حزب البعث المنحل + الامتحان النصفي
الأسبوع 9	جرائم التصفية
اسبوع 10	جرائم الإبادة الجماعية
اسبوع 11	جرائم الحروب الداخلية والخارجية
اسبوع 12	تعريف الديمقراطية
اسبوع 13	الحقوق والديمقراطية
اسبوع 14	اركان الديمقراطية وأهدافها
اسبوع 15	محاسن و مساؤى الديمقراطية
اسبوع 16	**الأسبوع التحضيري قبل الامتحان النهائي**

خطة التسليم (منهج المختبر الأسبوعي)

المنهاج الاسبوعي للمختبر

	المواد المغطاة **لايوجد**
الأسبوع 1	ـــــــ
الأسبوع 2	ـــــــ

مصادر التعلم والتعليم

مصادر التعلم والتدريس

	نص	**متوفر في المكتبة؟**
النصوص المطلوبة	مصادر حقوق الانسان من دستور وقانون	نعم
النصوص الموصى بها	مصادر حقوق الانسان من دستور وقانون	نعم
المواقع الإلكترونية	مواقع الانترنت	

مخطط الدرجات

مخطط الدرجات

مجموعة	**درجة**	التقدير	**العلامات (٪)**	**تعريف**
مجموعة النجاح (100 - 50)	**أ -** ممتاز	**معدل**	90 - 100	أداء متميز
	ب - جيد جدا	**جيد جدا**	80 - 89	فوق المتوسط مع بعض الأخطاء
	ج - جيد	**جيد**	70 - 79	عمل سليم مع أخطاء ملحوظة
	د - مرضية	**متوسط**	60 - 69	عادل ولكن مع أوجه قصور كبيرة

	ه - كافية	**مقبول**	50 - 59	العمل يفي بالحد الأدنى من المعايير
فشل المجموعة (0 – 49)	**FX -** فشل	**راسب (قيد المعالجة)**	(45-49)	مطلوب المزيد من العمل ولكن الائتمان الممنوح
	F - فشل	**راسب**	(0-44)	كمية كبيرة من العمل المطلوب

ملاحظة: سيتم تقريب العلامات التي تزيد المنازل العشرية عن 0.5 أو تقل عن العلامة الكاملة الأعلى أو الأدنى (على سبيل المثال ، سيتم تقريب علامة 54.5 إلى 55 ، بينما سيتم تقريب علامة 54.4 إلى 54. لدى الجامعة سياسة عدم التغاضي عن "فشل المرور الوشيك" ، لذا فإن التعديل الوحيد للعلامات الممنوحة بواسطة العلامة (العلامات) الأصلية سيكون التقريب التلقائي الموضح أعلاه.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics III			**Module Delivery**	
Module Type	S			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOBAB 0103031				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		2	**Semester of Delivery**		3
Administering Department		Electrical engineering	**College**	College of Engineering	
Module Leader	Murad Obaid Abed		**e-mail**	Eng.marad.obaid@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		M.Sc.
Module Tutor	Murad Obaid Abed		**e-mail**	Eng.marad.obaid@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Saad Saffah	**e-mail**	eng.saad.saffah@uobabylon.edu.iq	
Scientific Committee Approval Date		1/6/2023	**Version Number**		1

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	**UOBAB 0103021**	**Semester**	2
Co-requisites module	N/A	**Semester**	N/A

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1-Solute the problems of all systems and electrical and electronics circuits which related with the other materials. 2-Training to think about solution of problems of sequences and do the convergence and divergence tests for sequences. . 3- Train students to think about solution of problems of series One of the most important. 4- Know the types of series then calculate the total summation to the series, and know the types of special power series. 5- Know the partial differentiations and solute exercises related to functions of two or more variable then make the students know styles of solution of partial and directional derivatives. 6- Know the ordinary differential equations subject which is considered as a tool to the electrical circuits and network develop their skills to find out solutions of the first, second and higher order differential equations. 7- Know the vectors subject which is considered as a toll to the other subjects such as electrical fields, develop the skills to find out solutions of equations of lines and planes. 8- Know the product of three or more vectors then training to think about solution of problems of vector functions and motions .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A. Cognitive goals A1. Students should learn the principle of Mathematics III. A2. Understand the rules and regulations for this type of course. A3. Solving and simplifying Equations and series &sequences. A4. Read and Writing Equations for all the subjects of this semester. A5. Understand the problem and turn it into real mathematical problem. A6. Read different technical books and lecture notes. B. The skills goals special to the course. B1. Students able to solve the problems about all chapters successfully. B2. Students able to solve practical problems. B3. Students should be able to find the sum, converge, diverge for sequences and series and know the special types of it. B4: Student should be able to know information s about partial derivatives and how to solve problems.

	B5: Student able to solve different types of ordinary differential equations and how to deal with vectors and when he use it. B6. Students should be able to search for topics online and make reports.
Indicative Contents المحتويات الإرشادية	**Part 1**: Sequences and series. [16 hrs.] **Part 2:** Partial derivative. [12 hrs.] **Part3:** Vectors. [12 Hrs.] **Part 4:** Differential equation. [20 hrs.]
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Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1. Learning Technologies on Campus using Whiteboard and TV monitor. 2. Hand out lecture notes. 3. Video lectures on YouTube and google classroom.

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	2.466
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**	3	10% (10)	5,9,13	LO #1-4, 5-8, and 9-12
	Assignments	3	10% (10)	4,8, 12	LO # 1-3, 5-7 and 8-11
	Report	1	10% (10)	13	Continuous
Summative assessment	**Midterm Exam**	2 hrs	10% (10)	8	LO # 1-7
	Final Exam	3hrs	60% (50)	16 or 17	All

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Sequences and series:-infinite series,Convergence &divergence,limits of sequences.
Week 2	Geometric series, integral, comparison, root& ratio test
Week 3	Power series,Taylor & Maclaurins series
Week 4	Vectors: unit vector & midpoint of line segment, dot& cross product, orthogonal vectors, lines& planes in space, distance from a point to plane
Week 5	Vectors; equation for a line in space, lines of intersection, distance from a point to a plane, angle between planes, ripple scalar
Week 6	Velocity & acceleration, unit tangent vector-curvature&normal vectors. Principal unit normal vector, rule of curvature
Week 7	Partial derivatives: mixed derivative theorems, partial derivative of higher order, chain rule.
Week 8	Mid exam
Week 9	Implisit differentiation, directional derivative, gradient vector
Week 10	Properties of directional derivative, gradient and tangent to level curve, algebraic rules of gradient
Week 11	Tangent plane, normal line, extreme values and saddle points
Week 12	Differential equation: define, degree, order of de. solution of 1st d.e, separable 1st d.e, special type of separation
Week 13	Homogeneous function, homogeneous equation, &how to solve it, reducible to homogeneous, linear 1st order d.e
Week 14	Exact, separable and linear d.e
Week 15	Variation of parameters, undetermined coefficients, high order d.e, homogenous high order d.e

Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1-Advanced Engineering Mathematics: K , A , Stroud	No
Recommended Texts	1-Hass, Joel, Christopher Heil, Maurice D. Weir, and George B. Thomas, *Thomas' calculus*, Pearson, thirteen Edition.	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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electrical Networks**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐**Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103032**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	2		**Semester of Delivery**	3	
Administering Department	**Electrical engineering**		**College**	**College of Engineering**	
Module Leader	**Mustafa Rashid Ismael**		**e-mail**	**eng.mustafa.rashid@uobabylon.edu.iq**	
Module Leader's Acad. Title	**Assistant Prof.**		**Module Leader's Qualification**	Ph.D.	
Module Tutor	**Mustafa Rashid Ismael**		**e-mail**	**eng.mustafa.rashid@uobabylon.edu.iq**	
Peer Reviewer Name	**Dr. Sarmad Khaleel Ibrahim**		**e-mail**	**sarmad.ibrahim@uobabylon.edu.iq**	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**UOBAB 0103022**	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**Students should learn the followings:** • RL, RC, and RLC transient circuits: Their voltage and current response with time and how to analyze different RL, RC, and RLC circuits in both series and parallel connections. • Poly-phase Circuits: Single wire system, three phase system, types of power in single and three phase systems. • Magnetic Coupling: Coefficient of coupling, equivalent circuits, linear and ideal transformer. • Two-port Networks: representing the two-port networks in Z, Y, h, g, and ABCD-parameters. • Filters: All types of filters, passive filters, active filters, Butterworth filters, and Chebyshev filters.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the module "Electrical Networks", students are expected to achieve preliminary knowledge in: 1) RL, RC, and RLC circuits with DC input source, and hence they can understand their responses in different Ac input sources, such as sine waves, square waves and others. 2) Single and three phase systems and how to analyze different types of 3-phase system connections, such as YY, YΔ, ΔΔ, and ΔY-connections, calculation of the four types of supplied and dissipated powers (active, reactive, apparent, and complex powers). 3) Magnetic coupling for both aiding and opposing types and they will be able to represent the magnetic coupling circuits in their equivalent circuits. 4) Basics of One-port and two-port networks and they will be able to represent and analyze any circuit in Z, Y, h, g, and ABCD-parameters. They can convert the circuit representation from one to any other parameter. 5) All filter types, such as low-pass, high-pass, band-pass, and band-stop filters and

	they will be able to design all filters in both passive and active versions.
Indicative Contents المحتويات الإرشادية	1. Natural Response of RL and RC circuits [5 hrs]. 2. Step Response of RL and RC circuits [5 hrs]. 3. Natural Response of Series and Parallel RLC Circuits [5 hrs]. 4. Step Response of Series and Parallel RLC Circuits [5 hrs]. 5. Balanced Wye-Wye Connection and Balanced Wye-Delta Connection [5 hrs]. 6. Balanced Delta-Delta Connection and Balanced Delta-Wye Connection, Power in three phases [5 hrs]. 7. Mutual Inductance, Energy in a Coupled Circuit [5 hrs]. 8. Linear Transformers, Ideal Transformers [5 hrs]. 9. Frequency Response, Passive Filters [6 hrs]. 10. Active Filters [6 hrs]. 11. Butterworth Filters [5 hrs]. 12. High Q Circuits [5 hrs]. 13. Impedance Parameters, Admittance Parameters [5 hrs]. 14. Hybrid Parameters, Transmission Parameters [5 hrs].
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1) Review the fundamentals: Start by revisiting the basics of electrical circuits, including Ohm's Law, Kirchhoff's Laws, and circuit analysis techniques. Ensure you have a solid foundation before diving into more complex topics. 2) Understand the theory: Take the time to grasp the underlying theory and principles behind electrical networks. Understand concepts such as resistance, capacitance, inductance, impedance, and frequency response. Use textbooks, lecture notes, and online resources to enhance your understanding. 3) Practice problem-solving: Electrical Networks courses often involve a significant amount of problem-solving. Work through as many practice problems as you can to reinforce your understanding. Start with simple exercises and gradually progress to more challenging ones. Practice is crucial for developing problem-solving skills. 4) Work in study groups: Collaborating with classmates in study groups can be highly beneficial. Discussing concepts, solving problems together, and explaining ideas to each other can deepen your understanding. It also provides an opportunity to learn from your peers and clarify any confusion you might have. 5) Use visual aids: Electrical circuits are often represented graphically. Utilize circuit diagrams, circuit simulation software, and visual aids like graphs and charts to visualize and understand circuit behavior. This can help you analyze circuits more effectively. 6) Seek additional resources: If you're struggling with a particular topic, don't hesitate to seek additional resources beyond your course materials. Look for online tutorials, video lectures, or supplementary textbooks that provide alternative

	explanations or examples. Sometimes, a different perspective can help clarify complex concepts. 7) Work through examples in textbooks: Textbooks usually provide a variety of example problems with step-by-step solutions. Work through these examples to familiarize yourself with different types of circuit analyses and solution techniques. This will improve your problem-solving skills and expose you to a wider range of scenarios. 8) Seek clarification from your instructor: If you have questions or need clarification, don't hesitate to reach out to your instructor or teaching assistant. They are there to help you understand the material better. Ask for additional explanations, examples, or recommended resources to supplement your learning. 9) Build practical circuits: Consider experimenting with physical circuits or using circuit simulation software to gain hands-on experience. Building and analyzing real or simulated circuits can enhance your understanding of how theoretical concepts translate into practical applications. 10) Review and revisit: Regularly review previously covered topics to reinforce your understanding and ensure that the material stays fresh in your mind. Electrical Networks is a cumulative subject, and concepts from earlier units often build the foundation for later ones.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	10% (10)	2, 5, 10	LO # 1, 3- 4, and 6- 9
	Assignments	4	10% (10)	4, 6, 9, 12	LO # 2-3, 4- 5, 7-8 and 10- 11

	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	13	Continuous
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Transient analysis of RL and RC circuits.
Week 2	Transient analysis of series RLC circuits.
Week 3	Transient analysis of parallel RLC circuits.
Week 4	Three phase balance system, star, and delta connections.
Week 5	Unbalance system.
Week 6	Power in three phase circuits.
Week 7	**Mid-term Exam +** Magnetic coupling, coefficient of coupling.
Week 8	Linear transformers
Week 9	Ideal transformers.
Week 10	Passive filters.
Week 11	Active filters.
Week 12	Higher order and Butterworth filters.
Week 13	Impedance and admittance parameters.
Week 14	Hybrid and transmission parameters.
Week 15	Relationships Between Parameters.
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the**

		Library?
Required Texts	Electric Circuits by Nilsson and Riedel (Ninth Edition)	Yes
Recommended Texts	Fundamentals of Electric Circuits by Charles K. Alexander (Fourth Edition)	No
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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Electronics I			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103033**				
ECTS Credits	**6**				
SWL (hr/sem)	150				
Module Level		2	**Semester of Delivery**		3
Administering Department		Electrical engineering	**College**	College of Engineering	
Module Leader	Dr. Hilal Al-Libawy		**e-mail**	eng.hilal_Al-Libawy@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Dr. Hilal Al-Libawy		**e-mail**	eng.hilal_Al-Libawy@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Hassan Jasim	**e-mail**	hassan.jasim@uobabylon.edu.iq	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- Understand the structure, symbols, and terminal identification of BJTs. 2- Grasp the operating principles and different modes of operation of BJTs. 3- Learn various biasing techniques for BJTs and their impact on circuit performance. 4- Analyze the current-voltage characteristics of BJTs and their applications. 5- Gain proficiency in using the small-signal model to analyze BJT circuits. 6- Explore different amplifier configurations using BJTs, such as common emitter, common base, and common collector. 7- Examine the switching characteristics of BJTs and their application as electronic switches. 8- Familiarize yourself with the practical applications of BJTs, including amplifiers, oscillators, and switching circuits. 9- Develop the skills to analyze, design, and troubleshoot BJT circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A student who has successfully completed this course should be able to: 1. Introduction to Bipolar Junction Transistors (BJTs): a. BJT structure and symbols b. Types of BJTs: NPN and PNP transistors c. Terminal identification: emitter, base, and collector 2. BJT Operating Principles: a. BJT modes of operation: active, saturation, and cutoff b. BJT biasing: fixed bias, emitter bias, and voltage divider bias c. BJT current-voltage characteristics 3. BJT Small-Signal Model: Common emitter (CE), common base (CB), and common collector (CC) configurations 4. BJT Amplifier Configurations: a. Common emitter (CE) amplifier

	b. Common base (CB) amplifier c. Common collector (CC) amplifier 5. BJT Switching Characteristics: BJT as a switch, switching times: storage time, rise time, fall time 6. BJT Applications: a. Amplifiers: audio amplifiers, RF amplifiers b. Oscillators: RC-phase shift oscillator, Hartley oscillator c. Switching circuits: digital logic gates, electronic relays
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part 1: Introduction and Operating Principles [21 hrs]</u> • BJT structure, symbols, and terminal identification • NPN and PNP transistor types • BJT modes of operation: active, saturation, and cutoff • Biasing techniques: fixed bias, emitter bias, voltage divider bias • BJT current-voltage characteristics and the Early effect <u>Part 2: Small-Signal Model and Amplifier Configurations [15 hrs]</u> • Introduction to the small-signal model • Small-signal parameters: re- model • Analysis of common emitter (CE), common base (CB), and common collector (CC) amplifier configurations • Voltage gain, input/output impedance considerations in amplifier circuits <u>Part 3: Switching Characteristics and Applications [9 hrs]</u> • BJT switching characteristics: storage time, rise time, fall time • Practical applications of BJTs in amplifiers, oscillators, and switching circuits

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Learning Technologies on Campus using Whiteboard and TV monitor. 2. Hand out lecture notes. 3. Video lectures on YouTube and google classroom.

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**	3	10% (10)	5, 9,13	LO # 1-4, 5-8, and 9-12
	Assignments	3	5% (5)	4,8, 12	LO # 1-3, 5-7 and 8-11
	Projects / Lab.	1	20% (20)	13	
	Report	1	5% (5)	13	Continuous
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to BJTs: BJT structure and symbols Terminal identification: emitter, base, and collector. NPN and PNP transistor types
Week 2	BJT Operating Principles: BJT modes of operation: active, saturation, and cutoff
Week 3	Biasing techniques: fixed bias, emitter bias
Week 4	voltage divider bias
Week 5	Small-Signal Model and Analysis
Week 6	re model
Week 7	CE amplifier configuration analysis

Week 8	**Mid-term Exam+ exam answers tutorial**
Week 9	Voltage gain, input/output impedance calculations
Week 10	CB amplifier configuration analysis
Week 11	CC amplifier configuration analysis
Week 12	BJT as a switch: on-state and off-state behavior
Week 13	Switching times: storage time, rise time, fall time
Week 14	BJT Amplifier Design and Analysis,
Week 15	Multi-stage amplifier design
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction
Week 2	Rectifiers/ half wave rectifier
Week 3	Rectifiers/ full wave rectifier
Week 4	Voltage multiplier – Part I
Week 5	Voltage multiplier – Part II
Week 6	Voltage clipper
Week 7	More time to practice previous experiments
Week 8	**Mid-term Exam**
Week 9	Voltage clamper
Week 10	Low pass
Week 11	Band pass filters –Part II
Week 12	Band pass filters –Part II
Week 13	High pass filters
Week 14	Linear wave shaper

Week 15	More time to practice previous experiments
Week 16	Final Revision

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	3- **Electronic Devices and Circuit Theory** 11th Edition by Robert Boylestad (Author), Louis Nashelsky (Author) 4- **Microelectronic Circuits (The Oxford Series in Electrical and Computer Engineering)** 8th Edition by Adel S. Sedra (Author), Kenneth C. (KC) Smith (Author), Tony Chan Carusone (Author), Vincent Gaudet (Author)	No
Recommended Texts	1- Electronic Devices, Global Edition 10th Edition by Thomas L. Floyd (Author)	No
Websites	https://www.youtube.com/@HilalHussain	

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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Electrical Machines I			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOBAB 0103034**				
ECTS Credits	**6**				
SWL (hr/sem)	93				
Module Level		2	**Semester of Delivery**		3
Administering Department		Electrical Engineering	**College**	Engineering	
Module Leader	Dr. Riyadh Toman Thahab		**e-mail**	eng.riath.toman@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Dr. Riyadh Toman Thahab		**e-mail**	eng.riath.toman@uobabylon.edu.iq	
Peer Reviewer Name		Dr. Sarmad Khaleel	**e-mail**	sarmad.ibrahim@uobabylon.edu.iq	

Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	N/A	**Semester**	N/A
Co-requisites module	N/A	**Semester**	N/A

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Provide students with magnetic circuit analysis related to the machine theory. 2. Provide students with an in-depth knowledge concerning DC Machines construction and principles of operation. 3. Supplement information on generating and motoring actions of DC Machines. 4. Provide students with information on steady state operation of DC machines whether generating or motoring. 5. Study electrical and mechanical characteristics of different types of DC Machines. 6. Study power flows and efficiency calculations of DC machines. 7. To provide practical insight of theoretical materials through a set of related experiments.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students are able to provide a description of each type of DC machines and be able to understand the principles of operation. 2. Gain the skills to compare between different types of DC machines and have the ability to determine a particular type for a specific application. 3. Students are able to explain the characteristics of machines whether it is a motor or a generator. 4. Students have the skills to analyze steady state models of DC generators and motors. 5. Students have the knowledge to design the required ratings of a generator or motor and able be to fully understand losses in various parts of the machine. 6. Students have the ability to set up practical circuit to obtain

	characteristics of DC machines practically. 7. Students will have the ability to explain and justify any discrepancies between practical results and theoretical ones.
Indicative Contents المحتويات الإرشادية	1.Magnetic circuits. (3 hrs.) 2. Basic architecture of DC machines. (6 hrs.) 3. Armature Windings. (3hrs.) 4. Steady state analysis of DC generators. (18 hrs.) 5. Steady state analysis of DC motors. (15 hrs.)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Learning Technologies on Campus using Whiteboard and TV monitor. 2. Hand out lecture notes. 3. Video lectures on YouTube and google classroom.

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**	4	10% (10)	3,6,9 & 12	LO # 1-2, 4-5, 6-8 and 9-11

	Assignments	3	5% (5)	4,10 & 11	LO # 1-3, 5-9, and 10
	Projects / Lab.	1	20% (20)	Continuous	
	Report	1	5% (5)	13	Continuous
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	8	LO # 1-7
	Final Exam	3 hrs.	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Review of magnetic circuits, magnetic quantities.
Week 2	Magnetic cores, reluctance calculations, with airgaps, determination of required excitation, solenoids, magnetic circuit, examples.
Week 3	Introduction to rotating machines, principle of operation for rotating machines, basic construction of DC machines, familiarization with DC machine parts.
Week 4	Induced EMF in DC machine, function of commutator, armature winding, and types of armature windings.
Week 5	MMF distribution, calculations of MMF per pole, armature reaction, commutation, compensation windings and inter-poles.
Week 6	Introduction to DC generators, general equation of induced EMF, types of DC generators according to excitation,
Week 7	Characteristics of DC generators (open circuit and load characteristics) for each type of DC generator (shunt, series, compound and separately excited).
Week 8	**Two hour midterm test**. Parallel operation of DC generators, conditions for parallel operation.
Week 9	Load current sharing in parallel connection. Introduction to power flow in DC generators,

	type of losses and efficiency calculations for DC generator.
Week 10	Introduction to DC motors, principle of operation, back EMF, general equation of induced torque, types of DC motors.
Week 11	Characteristics of DC motors, speed vs. armature current and torque vs. armature current. Part 1
Week 12	Characteristics of DC motors, speed vs. armature current and torque vs. armature current. Part 2
Week 13	Power flow in DC machines, efficiency calculations and losses.
Week 14	Voltage control and field control methods.
Week 15	Speed control of DC motor, the need for speed control system, armature control.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Familiarization with lab equipment and safety precautions/measures.
Week 2	Magnetization characteristic of DC shunt generator
Week 3	Load test on DC shunt generator.
Week 4	Load test on DC series generator
Week 5	Load test on DC compound generator
Week 6	Field test on dc series generator.
Week 7	Load test on DC shunt motor
Week 8	**Mid-term Exam/Theoretical + practical parts**
Week 9	Speed control of dc shunt motor
Week 10	Swinburne's test of dc shunt motor
Week 11	Hopkinson's test on dc shunt machines
Week 12	Brake test on a dc shunt motor
Week 13	Brake test on dc compound motor

Week 14	Magnetization characteristic of dc shunt generator by using digital simulation.
Week 15	Review for final Exam
Week 16	**End of Semester Exam/ Theoretical + practical parts**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	*Electric Machinery Fundamentals, Fifth edition, 2012 by Stephen J. Chapman.*	Yes
Recommended Texts	1. *Electrical Machinery, 2003 6th Edition by Fitzgerald, Kingsley, and Umans.*	No
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
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	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

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

معلومات الوحدة معلومات المادة الدراسية				
عنوان الوحدة	جرائم البعث			تسليم الوحدة
نوع الوحدة	B			☐ نظريه ☐ قراءة ☐ المختبر ☒ تعليمي ☐ عملي ☐ الحلقه الدراسيه
رمز الوحدة				
ECTS ائتمانات	2			
SWL (ساعة / SEM)	50			
مستوى الوحدة	2	الفصل الدراسي للتسليم		4
الإدارة الإدارية	قسم الهندسة الكهربائية	الكليه		كلية الهندسة
قائد الوحدة		البريد الإلكتروني		
لقب قائد الوحدة		مؤهلات قائد الوحدة		
مدرس الوحدة		البريد الإلكتروني		

اسم المراجع النظير		**البريد الإلكتروني**	البريد الإلكتروني
تاريخ اعتماد اللجنة العلمية	2023/6/1	**رقم الإصدار**	1.0

العلاقة مع الوحدات الأخرى **العلاقة مع المواد الدراسية الأخرى**			
وحدة المتطلبات الأساسية		**الفصل الدراسي**	
وحدة المتطلبات المشتركة		**الفصل الدراسي**	

أهداف الوحدة ونتائج التعلم والمحتويات الإرشادية **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية**	
أهداف المادة الدراسية	6. بيان جرائم حزب البعث 7. الاثار المترتبة على جرائم البعث. 8. مفهوم الجريمة واقسامها. 9. بيان الجرائم النفسية والاجتماعية لحزب البعث. 10. بيان جرائم المقابر الجامعية.
مخرجات التعلم للوحدة **مخرجات التعلم للمادة الدراسية**	23. يتعلم الطالب تعريف الجريمة واقسامها و ان يعدد انواعها. 24. يتعلم الطالب انواع الجرائم التي ارتكبها نظام حزب البعث في العراق. 25. يقوم الطالب بتحديد اثار الجرائم 26. يتعرف الطالب على احداث جرائم المقابر الجماعية في العراق.
المحتويات الإرشادية	يتضمن المحتوى الإرشادي ما يلي. 1. وثائق رسمية محلية. 2. صور لجرائم بشعة. 3. وثائق رسمية دولية 4. تقارير منظمات انسانية

استراتيجيات التعلم والتعليم استراتيجيات التعلم والتعليم	
استراتيجيات	1. الحلقات النقاشية. 2. عرض صور عن الجرائم المرتكبة في العراق. 3. طرح مواضيع واسئلة إستراتيجية.

عبء عمل الطالب (SWL) الحمل الدراسي للطالب			
SWL منظم (h / sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	SWL منظم (ح / ث) الحمل الدراسي المنتظم للطالب أسبوعيا	2
SWL غير منظم (h / sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	SWL غير منظم (ح / ث) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
إجمالي SWL (h / sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

تقييم الوحدة تقييم المادة الدراسية					
		الوقت/الرقم	الوزن (بالعلامات)	الأسبوع المستحق	نتائج التعلم ذات الصلة
التقييم التكويني	مسابقات	3	10% (10)	4,9, 12	LO # All
	تعيينات	3	10% (10)	2,7, 10	LO # 3, 4, 6 and 9
	المشاريع	1	10% (10)	Continuous	
	تقرير	1	10% (10)	13	LO # All
التقييم الختامي	الامتحان النصفي	2 hr	10% (10)	8	LO # 1-9
	الامتحان النهائي	3 hr	50% (50)	16	All
التقييم الإجمالي			100% (100 Marks)		

خطة التسليم (المنهج الأسبوعي) المنهاج الاسبوعي النظري	
	المواد المغطاة

الأسبوع 1	مفهوم الجرائم واقسامها
الأسبوع 2	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005
الأسبوع 3	الجرائم النفسية
الأسبوع 4	الجرائم الاجتماعية وعسكرة المجتمع
الأسبوع 5	انتهاكات القوانين العراقية
الأسبوع 6	اختبار
الأسبوع 7	جرائم التلوث الحربي والاشعاعي وانفجار الالغام
الأسبوع 8	تدمير المدن والقرى (سياسة المدن المحروقة)
الأسبوع 9	تجفيف الاهوار
اسبوع 10	تجريف بساتين النخيل والاشجار
اسبوع 11	اختبار
اسبوع 12	جرائم المقابر الجماعية
اسبوع 13	احداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي
اسبوع 14	التصنيف الزمني لمقابر الإبادة الجماعية في العراق
اسبوع 15	حلقة نقاشية
اسبوع 16	**الأسبوع التحضيري قبل الامتحان النهائي**

مصادر التعلم والتعليم

مصادر التعلم والتدريس

	نص	**متوفر في المكتبة؟**
النصوص المطلوبة		نعم
النصوص الموصى بها		نعم
المواقع الإلكترونية	مواقع الانترنت	

مخطط الدرجات

مخطط الدرجات

مجموعة	**درجة**	التقدير	**العلامات (٪)**	**تعريف**
مجموعة النجاح (100 - 50)	أ - ممتاز	**معدل**	90 - 100	أداء متميز
	ب - جيد جدا	**جيد جدا**	80 - 89	فوق المتوسط مع بعض الأخطاء

	ج - جيد	**جيد**	70 - 79	عمل سليم مع أخطاء ملحوظة
	د - مرضية	**متوسط**	60 - 69	عادل ولكن مع أوجه قصور كبيرة
	ه - كافية	**مقبول**	50 - 59	العمل يفي بالحد الأدنى من المعايير
فشل المجموعة	**FX** - فشل	**راسب (قيد المعالجة)**	(45-49)	مطلوب المزيد من العمل ولكن الائتمان الممنوح
(0 – 49)	**F** - فشل	**راسب**	(0-44)	كمية كبيرة من العمل المطلوب

ملاحظة: سيتم تقريب العلامات التي تزيد المنازل العشرية عن 0.5 أو تقل عن العلامة الكاملة الأعلى أو الأدنى (على سبيل المثال ، سيتم تقريب علامة 54.5 إلى 55 ، بينما سيتم تقريب علامة 54.4 إلى 54. لدى الجامعة سياسة عدم التغاضي عن "فشل المرور الوشيك" ، لذا فإن التعديل الوحيد للعلامات الممنوحة بواسطة العلامة (العلامات) الأصلية سيكون التقريب التلقائي الموضح أعلاه.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	English Language II			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**UOBAB 0103036**				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		2	**Semester of Delivery**		3
Administering Department		Electrical Engineering	**College**	Engineering	
Module Leader	Dr. Riyadh Toman Thahab Dr. Wasan Al Masoody		**e-mail**	eng.riath.toman@uobabylon.edu.iq eng.wasan.hashim.lec@uobabylon.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		Ph.D.

Module Tutor	Dr. Wasan Al Masoody	**e-mail**	eng.wasan.hashim.lec@uobabylon.edu.iq
Peer Reviewer Name	Dr. Sarmad Khaleel	**e-mail**	sarmad.ibrahim@uobabylon.edu.iq
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	**UOBAB 0103016**	**Semester**	1
Co-requisites module	N/A	**Semester**	N/A

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	a- Develop the English language knowledge and skills. b-Increase knowledge about different topics including grammar, vocabulary, reading, and writing. c- Prepare students to use English for their professional studies in the university and consequently for their professional needs in real life and work. d- Give the students the opportunity to speak on general topics, to communicate in many environments and to understand texts on science, history, business and finance in the English-speaking world. e- Strength student knowledge within this field. f- Increase the students' ability in technical terminology in engineering and in particular electrical engineering. g- Define research ethics and emphasize the importance of citing paper, paraphrasing and citation, ---- ect. h- Give students a broad experience of how to deal with job interviews and how to

	express their ideas and thoughts to potential employers. Also preparing a technical C.V.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Develop a wide range of skills that include: a- Language Development, which involves grammar and extensive vocabulary learning. b- Writing skills, which have a specific focus on literacy and short essays, notes. c- Reading, which involves study of instructional engineering-related texts of topical relevance. d- Listening, which includes comprehension of gist and detailed information. e- Communication skills, which cover communication situations. 2. Students are able to pronounce, read and write. They acquire their knowledge of fundamental grammatical structures and functions (e.g. sentence types, tenses, voice, parts of speech, word order, expressing possibility, obligation, necessity, prohibition, criticism; expressing preferences, making assumptions; asking for/ refusing/giving permission; making offers, suggestions, etc.) . 3. Acquire fundamental vocabulary to fulfill the above mentioned functions in roles, topics and discussions. 4. Students should be able to convey ideas and thoughts on different topics (people, jobs, places to visit, festivals/celebrations, disasters/accidents, eating habits, sports/hobbies, environment, education, entertainment, transport, etc.). 5. Students are able to understand spoken language. 6. They are expected to learn to produce written texts of various types. 7. Students will be able to write research papers or project reports considering full implementation of research ethics and avoiding plagiarism. 8. Students should be able to write a full professional C.V.
Indicative Contents المحتويات الإرشادية	1- Grammar Skills: Tenses used in the English language. (5 hrs.) 2- Reading Comprehension Skills: Articles related to electrical engineering or general topics. (5 hrs.) 3- Writing Skills: Comprehension for a scientific subject. (5 hrs.) 4- Listening Skills: Videos and you tubes. (5 hrs.) 5- Seminars that include individual presentations. (5 hrs.) 6- Paraphrasing and citation. (5 hrs.) 7- Curriculum Vitae writing. (7 hrs.)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Learning Technologies on Campus using Whiteboard and TV monitor. 2. Hand out lecture notes. 3. Video lectures on YouTube and google classroom.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.46
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**	3	20% (10)	3,5 & 10	LO # 1-3 ,4-6, 7-8
	Assignments	2	10% (10)	6 , 12	LO # 4 and 5, 10 and 11
	Projects / Lab.	------	----------	---	-------
	Report/CV writting	1	10% (10)	13	LO#7
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-5
	Final Exam	3hr	50% (50)	16 or 17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1	Introduction of the students to the world of English language. The content of this lecture is based on preliminary review of grammars which involve tenses and extensive vocabulary learning.
Week 2	Learning the Quantifiers, what the quantifiers are, and giving some examples related to this topic. Learning the propositions, what the propositions are, and giving some examples related to them.
Week 3	Asking questions, learning students how to prepare and ask questions. Introducing parallel structure, and show the strategy of making parallel structure, which includes comprehension examples detailed information.
Week 4	Learning the Compound Nouns. What the compound nouns are. Understand and recognize the compound nouns, their structure, compositions, and usage. It will be covered with some examples.
Week 5	Learning the Phrasal Verbs. What the phrasal verbs are. Study their structures and usages. Access the most important types of the phrasal verbs, which includes comprehension examples and detailed information.
Week 6	Learning Idioms. Giving idioms meanings. Study their structures and usages. Understanding and recognizing the most popular idioms and common idioms in the English language.
Week 7	**Mid-term Exam.** Extensive review on English tenses in use.
Week 8	Spoken English and Informal Language
Week 9	Narrative tenses in past simple, past continuous and past perfect. Passive and active.
Week 10	Questions and negative
Week 11	Future forms, going to, shall, will,--ect.
Week 12	Expressions of quantity, a few, a little, plenty of, hardly any, --ect.
Week 13	Modals and related verbs, able to, manage to, bound to, supposed to, and allowed to.
Week 14	Relative clauses, that, who, what, whose, which. Ethics of research, definition of plagiarism.
Week 15	**Writing a good C.V., preparation for job interview.**
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	5- New Headway Plus (Intermediate Book) by John and Liz Soars 6- New Headway Plus (Upper-Intermediate Student's Book English course) by John and Liz Soars	Yes
Recommended Texts	1. Fundamental of English Grammar by Betty S. Azar and Stacy A. Hagen	No
Websites	https://learnenglish.britishcouncil.org	

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.