



Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Department of Electrical and Electronics
Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ARABIC LANGUAGE SKILLS مهارات اللغة العربية		Module Delivery
Module Type	SUPPLEMENT		Class Lecture Tutorial
Module Code	UR 101		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	EEE Dept.	College	College of Engineering
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	None
Peer Reviewer Name	Dr.Amean Al-Safi	e-mail	amean.alsafi@utq.edu.iq
Review Committee Approval	18/6/2023	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

<p>Module Aims أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. التعرف على مواطن الجمال في اللغة العربية وآدابها، وأن يكتسب الطالب القدرة على دراسة فروع اللغة العربية. 2. تنمية الذوق الأدبي لدى الطالب حتى يدرك النواحي الجمالية في أساليب الكلام 3. تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتصال مع الآخرين؛ كالسرعة وجودة الإلقاء وحسن التعبير. 4. تعويد الطالب التعبيرات السليمة الواضحة عن أفكاره وما يقع تحت حواسه نطقاً وكتابة وحسن استخدام علامات الترقيم 5. تنمية قدرة ومهارة الطالب الإملائية والخطية بحيث يستطيع الكتابة الصحيحة من جميع النواحي . 6. تعويد الطلاب على قواعد الحديث واحترام الرأي الآخر وكذلك التغلب على عامل الخجل .
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. الاهداف المعرفية 2. تذكر المعلومات التي درسها واستدعاؤها عند الحاجة 3. فهم المعلومات والشروح التي تفسر بعض الظواهر اللغوية والأدبية 4. تطبيق جميع ما تعلمه ودرسه الطلبة في حياتهم العملية 5. تحليل المشكلة او الموضوع الذي يتالف من اجزاء مختلفة ودراستها 6. تركيب اجزاء الجملة لمعرفة معنى كل جزء على حدة مع الاطلاع على المفاهيم الأدبية والأغراض الشعرية
<p>Indicative Contents المحتويات الإرشادية</p>	<p>اللغة العربية أو لغة الضاد هي واحدة من أكثر اللغات انتشاراً ضمن مجموعة اللغات السامية، في دول الوطن العربي إضافة للعديد من المناطق الأخرى مثل تركيا، والأحواز، ومالي وتشاد، والسنغال، وإثيوبيا، وأريتيريا، وإيران، وجنوبي السودان. اللغة العربية تعتبر لغة مقدسة على اعتبار أنها لغة القرآن، حيث لا تتم الصلاة والعبادات الأخرى في الدين الإسلامي إلا بآتيان اللغة العربية، كما أنها لغة شعائرية لدى عددٍ من الكنائس المسيحية على امتداد الوطن العربي، وقد تمت كتابة العديد من الأعمال الفكرية والدينية اليهودية بها وتحديداً في العصور الوسطى. كان لانتشار الدين الإسلامي تأثيراً مباشراً وغير مباشر في رفع شأن ومكانة اللغة العربية، حيث أصبحت لغة العلم والأدب والسياسة لأزمنة طويلة في الديار التي حكمها المسلمون، بالإضافة لهذا فقد كان للغة العربية تأثيرٌ كبير على عددٍ من اللغات الأخرى على امتداد العالم الإسلامي.</p>
<h3>Learning and Teaching Strategies</h3> <h4>استراتيجيات التعلم والتعليم</h4>	
<p>Strategies</p>	<ol style="list-style-type: none"> 1. إثارة اسئلة متنوعة يمكن عبرها استدعاء المعلومات 2. شرح موضوع ما عبر مصادر متنوعة ومحاولة ربط المصادر بعضها ببعض 3. مشاهدة بعض البرامج والندوات العلمية والمؤتمرات العلمية والتربوية

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	0
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/N umber	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	3, 5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	4, 12	LO # 3, 4, 6 and 7
	Midterm Exam	1.5 hr	20% (20)	8	LO # 1-7
	Final Exam	3hr	60% (60)	16	All
Summative assessment	100% (100 Marks)				

Learning and Teaching Resources

مصادر التعلم والتدريس

1. شرح ابن عقيل
2. معجم اللغة العربية
3. شذا العرف في فن الصرف
4. كتب الادب والشعر

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.





Ministry of Higher Education and
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University of Thi-Qar
College of Engineering
Department of Civil Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	الورش الهندسية		Module Delivery
Module Type	BASIC		Theory Lecture Lab Tutorial Practical Seminar
Module Code	ER		
ECTS Credits	2		
SWL (hr/sem)			
Module Level	1	Semester of Delivery	
Administering Department	<u>Mechanical Engineering</u>		College Engineering
Module Leader	Dr. Adnan A. Ugla		e-mail Adnan-alomary@utq.edu.iq
Module Leader's Acad. Title	Professor		Module Leader's Qualification Ph.D.
Module Tutor	None		e-mail None
Peer Reviewer Name			e-mail
Review Committee Approval	20/6/2023		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

<p>Module Aims أهداف المادة الدراسية</p>	<p>الهدف الرئيسي هو تعريف الطلاب بالمبادئ الرئيسية للورش الهندسية وعلاقتها بالهندسة المدنية. توفر الورش الهندسية الدراسة المنهجية لعمليات التصنيع والتشغيل واللحام والانتهاءات السطحية حيث يحتاج المهندسون المدنيون بشكل كبير إلى معرفة تلك المهارات الهندسية المهمة . المهندس المدني لايد ان يكون مطلع على جميع الاعمال الهندسية المتعلقة بقطع المعادن وتشغيلها و انهاء السطوح و الحصول على منتجات معدنية او غير معدنية بعمليات قطع المعادن المختلفة وكذل عمليات وصل المعادن.</p>
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<p>دراسة عمليات قطع المعادن و تشكيلها المختلفة و الفهم الجيد لخصائصها و كيفية تحسين مواصفاتها. يتمتع المهندسون المدنيون بفهم شامل لكيفية تصنيع الاجزاء الميكانيكية الحاكمة و طريقة التعامل مع مكانن قطع و تشغيل المعادن و كذلك عمليات سباكة و لحام الاجزاء المعدنية اللازمة. يتخرج العديد من الهندسيين بفهم جيد عن التعامل مع المواد المعدنية و طرق تشكيلها وقطعها و لحامها وغيرها من المهارات المهمة و التي يتعلمها في الورش الهندسية المتخصصة.</p>
<p>Indicative Contents المحتويات الإرشادية</p>	<p>مقدمة عامة عن الورش الهندسية و المعدات و الادوات المستعملة فيها, دراسة عمليات قطع المعادن بعمليات الخرطة, دراسة انواع المكانن المستعملة في عمليات الخراطة و استعمالات كل نوع منها, اجراء تمارين عملية على الخراطة, دراسة عملية التفريز, تصنيف انواع مكانن التفريز و طرق لتفريز الشائعة, اجراء تمارين عملية عن عمليات التفريز و معرفة محاسن و مساوئ التفريز,دراسة عمليات القشط و استعمالاتها و اجراء تجارب عملية عليها, دراسة عملية التنعيم السطحي و الاسطواني و طرق استمالها, دراسة عمليات اللحام الشائعة و مقارنة الانواع المستعملة و تحديد استعمالات كل نوع منها, دراسة انواع اسلاك اللحام المختلفة و تحديد الانواع المفيدة منها. اجراء تجارب عملية و اعداد تقارير عنها.</p>

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>الاستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه المادة هي تشجيع الطلاب على اتخاذ القرار الهندسي الصحيح داخل الموقع من خلال المعرفة الجيدة بالورش الهندسية ومدى علاقتها الكبيرة في مشاريع الهندسة المدنية في حقل العمل. سيتم تحقيق ذلك من خلال المواضيع المهمة التي تم اختيارها حيث سيتم اشراك الطلبة بالأنشطة العملية المتمثلة بالتمارين العملية و اعداد التقارير العلمية التي تخص المادة هذا سوف يؤدي الى تطوير مهارات الطلاب وتهيئتهم للواقع العملي المتقدم.</p>
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Student Workload (SWL)

الحمل الدراسي للطلاب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	-	-	-	LO # 3, 4, 6 and 7
	Projects / Lab.	-	-	-	
	Report	1	15% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	25% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All

Total assessment	100% (100 Marks)		
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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	مقدمة عامة عن الورش الهندسية , مهام الورش الهندسية وعلاقتها بالهندسة المدنية.
Week 2	مقدمة عامة عن الورش الهندسية و المعدات و الادوات المستعملة فيها
Week 3	دراسة قطع المعادن بعملية الخرطة, دراسة انواع المكانن المستعملة في عمليات الخراطة و استعملات كل نوع منها,
Week 4	اجراء تمارين تطبيقية على مكانن الخراطة
Week 5	دراسة قطع المعادن بعملية التفريز, دراسة انواع المكانن المستعملة في عمليات التفريز و استعملات كل نوع منها,
Week 6	اجراء تمارين تطبيقية على مكانن التفريز
Week 7	Mid-term Exam
Week 8	دراسة قطع المعادن بعملية التنعيم, دراسة انواع المكانن المستعملة في عمليات التنعيم و استعملات كل نوع منها,
Week 9	اجراء تمارين تطبيقية على مكانن التنعيم
Week 10	دراسة قطع المعادن بعملية البرادة, دراسة انواع الادوات و العدد المستعملة في عمليات البرادات
Week 11	اجراء تمارين تطبيقية في ورشة البرادة
Week 12	دراسة وصل و ربط المواد المعدنية, دراسة انواع المكانن المستعملة في عمليات اللحام و استعملات كل نوع منها,
Week 13	اجراء تمارين تطبيقية على مكانن اللحام اليدوي و الشبه مؤتمت
Week 14	اجراء تمارين تطبيقية في عملية اللحام الغازي (الشعلة الاوكسي-اتسلينية)
Week 15	Preparatory Week
Week 16	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	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1- الورش الهندسية.	yes
Recommended Texts	كراس خاص بالورش الهندسية	yes
Websites		

APPENDIX:

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

Note:

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



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MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	CALCULUS		Module Delivery
Module Type	BASIC		Theory Lecture Tutorial
Module Code	ER 105		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	1
Administering Department	EEE	College	Engineering
Module Leader		e-mail	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Huda Anwar	e-mail	huda@utq.edu.iq
Peer Reviewer Name	Dr. Ahmed A. Fadhil	e-mail	ahmed-abd-h@utq.edu.iq
Review Committee Approval		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

<p>Module Aims أهداف المادة الدراسية</p>	<ol style="list-style-type: none">1. To develop problem solving skills and understanding of basic calculus tools that are needed for the engineering applications.2. To understand different methods of integration beyond what is given in the high school.3. This course introduces the mathematic techniques needed to deal with double and triple integrals. Furthermore, students learn their applications in calculating areas and volumes.4. This is the basic subject for all engineering students.5. To understand how to solve and formulate problems using polar coordinates.6. To understand and solve triple integral in Cartesian, cylindrical, and spherical coordinates.7. To understand line and surface integrals, Green's theorem.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none">1. To make the student able to show real knowledge of mathematical concepts during the school year and their applications in different areas of engineering.2. Learn and understand the basic definitions used in engineering mathematics such as coordinates of real values, bases and roots, equations, inequalities and graphs.3. Learn and understand the methods of solution and time applications in integration.4. Familiarity with the laws of finding integration by using the methods of unitary integration and using the properties of integration.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Introduction, review, and methods of integration with applications. [15 hrs] Functions of several variables: limit, continuity, chain rules introducing vectors cross and dot products. [8 hrs] Multiple integrals: Volumes and Surface area. Integrals in general coordinate systems Line and surface integrals, Green's theorem. Polar coordinates. [20 hrs] Triple integral in Cartesian, cylindrical, and spherical coordinates. [8 hrs]</p>

	There will be a 2-hour tutorial each week that involves problems solving and reviewing for that week's class material. [30 hr]
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.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	8.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – integrals type and laws
Week 2	Methods of integration (integration by complete the square, integration of trigonometric substitutions)
Week 3	Method of integration (integration of partial fractions, integration of rational power, integration by parts, integration for odd and even powers of sine and cosine)
Week 4	Applications of integration (definite integral, area under the curve, area between curves, volume).
Week 5	Part 1 of Functions of several variables: limit and continuity.
Week 6	Part 2 of Functions of several variables: chain rules and introducing vectors cross and dot products.
Week 7	Mid-term Exam
Week 8	Multiple integrals: Volumes and Surface area
Week 9	Integrals in general coordinate systems
Week 10	Part 1 of Line and surface integrals, Green's theorem
Week 11	Part 2 of Line and surface integrals, Green's theorem
Week 12	Polar coordinates
Week 13	Part 1 of Triple integral in Cartesian, cylindrical, and spherical coordinates.
Week 14	Part 2 of Triple integral in Cartesian, cylindrical, and spherical coordinates.
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	George B. Thomas, Jr., "Thomas 'Calculus", 12th edition, Addison Wesley, Pearson Education, Inc, 2010.	Yes
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				



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



Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Electrical and Electronic Engineering
Department



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ELECTRICAL CIRCUIT I		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar
Module Code	EEE1110		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGII	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Dr. Ayman Nasih Salman	e-mail	a.younis@utq.edu.iq
Module Leader's Acad. Title	lecture	Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		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	<ol style="list-style-type: none"> 1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand how voltage, current and power from a given circuit. 3. This course deals with the basic concept of electrical circuits. 4. This is the basic subject for all electrical and electronic circuits subject. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis. 7. Explain the principle of superposition and how it can be used to help analyze circuits. 8. Recognize Thevenin's and Norton's theorems and know how they can lead to greatly simplified circuits. 9. Explain the maximum power transfer concept. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Identify the basic circuit elements and their applications. 		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>Part A - Circuit Theory</u></p> <p>DC circuits – Current and voltage definitions, Passive sign convention and circuit elements, Combining.</p> <p>resistive elements in series and parallel. Kirchhoff's laws and Ohm's law. Anatomy of a circuit, Network reduction, Introduction to mesh and nodal analysis . [30 hrs]</p> <p>Revision problem classes [10 hrs]</p> <p>Fundamentals Resistive networks, voltage and current sources, Thevenin and Norton equivalent circuits, current and voltage division, input</p>		

	resistance, output resistance, maximum power transfer [30 hrs] Revision problem classes [10 hrs]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

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

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Basic Concepts
Week 2	Basics of Network Elements
Week 3	Resistance and Resistivity, Ohm's Law and Inductance, Capacitance
Week 4	Review of Kirchhoff's Laws, Circuit Analysis - Nodal and Mesh
Week 5	Circuit Analysis - Nodal and Mesh
Week 6	Linearity and Superposition, Source Transformations
Week 7	Thévenin and Norton Equivalents
Week 8	Maximum Power Transfer
Week 9	Mid-term Exam
Week 10	First-Order Circuits
Week 11	The Source-Free RC Circuit
Week 12	The Source-Free RL Circuit
Week 13	Step Response of an RC Circuit
Week 14	Step Response of an RL Circuit
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Ohm's Law
Week 3	Lab 3: Kirchhoff's Laws
Week 4	Lab 4 Thévenin's Theorem
Week 5	Lab 5: : Norton's Theorem
Week 6	Lab 6: First-Order Transient Responses
Week 7	Lab 7: Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

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

Note:

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



Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Department of Mechanical Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	ENGINEERING DRAWING + DESCRIPTIVE ENGINEERING		Module Delivery	
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar	
Module Code	ER 104			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	Semester of Delivery		1
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Dr. Mustafa M. Mansor		e-mail	Mustafa.muhammedali @utq.edu.iq
Module Leader's Acad. Title	Lecture	Module Leader's Qualification	Ph.D.	
Module Tutor	None		e-mail	None
Peer Reviewer Name			e-mail	
Review Committee Approval	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	Provide students with: An understanding of the definition, necessary background and importance of the subject of Mechanical Eng. Drawing, apply the basic terminology, concepts, principles and theories of it in order to: <ul style="list-style-type: none"> • Be able to draw mechanical elements, • Be able to apply geometrical and dimensional tolerances, • Practice assembly drawings, • Be able to use drawing software packages for drawing both mechanical elements and assembly drawings. Skills of hand drawing of sketches.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Apply knowledge of mathematics, science, and engineering 2. Design a system, component, or process to meet desired needs 3. Use the techniques, skills, and modern engineering tools necessary for engineering practice 		
Indicative Contents المحتويات الإرشادية	<ul style="list-style-type: none"> • Introduction to drawing, • engineering drawing / line tools and types of lines, • engineering operations, projections, <ol style="list-style-type: none"> 1- Semi-straight line 2- Divide the line into a number of equal parts 3- Draw a straight line parallel to another line 4- Draw a straight line parallel to another straight line using the triangle and the letter T ruler 5- Divide the angle 6- Divide an angle into a number of equal parts 7- Draw a regular triangle given the sides 8- Draw an arc touching two straight lines 9- Draw an arc touching another arc and a straight line 10- Draw an arc that touches two other arcs 11 - Draw a regular pentagon 12 - Draw a regular hexagon 13- Divide the circle into seven equal parts 14- Divide the circle into eight equal parts 		

	<p>15- Draw an ellipse using the four-center method</p> <ul style="list-style-type: none"> • Truncated projections, reproduction of an unknown projection of a known projection (the third projection), • dimensioning on the projections, • Free drawing, stereoscopic drawing, reproduction of figures from projections, cutting in figures, dimensions in figures
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
Strategies	<p>Skills of using a drafting package. Geometrical and dimensional tolerances. Applications on mechanical elements (bolted, welded and riveted joints, shafts and keys, springs, gears). Applications on assembly and working drawings (valves, presses etc.)</p> <p>Descriptive geometry and methods of projection, Projection of point, Projection of straight line, Projection plane surface, Auxiliary planes, Development, Application.</p>

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	20% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	40% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to drawing,
Week 2	engineering drawing / line tools and types of lines,
Week 3	line tools and types of lines +Descriptive geometry
Week 4	engineering operations
Week 5	engineering operations + methods of projection,
Week 6	engineering operations +Projection of point
Week 7	Mid-term Exam+, Projection of straight line,
Week 8	projections
Week 9	projections + Projection plane surface
Week 10	Truncated projections
Week 11	reproduction of an unknown projection of a known projection (the third projection)
Week 12	dimensioning on the projections
Week 13	Free drawing, stereoscopic drawing+ Auxiliary planes, Development, Application
Week 14	reproduction of figures from projections, cutting in figures, dimensions in figures
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Textbooks and References • "Engineering Design Graphics", James H. Earle, AutoCAD 2004, Pearson Education Inc.	Yes

Recommended Texts	<ul style="list-style-type: none"> "Engineering Drawing" with a primer on AutoCAD, Archad Noor etc. Prentice-Hall 200 	No
Websites		

APPENDIX:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
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Ministry of Higher Education and
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College of Engineering
Department of Electrical and Electronics
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	GENERAL PHYSICS		Module Delivery
Module Type	SUPPORT		Theory Lecture
Module Code	ER101		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	EEE	College	
Module Leader	AbdullhSaiwan Majli	e-mail	abdallah_s@utq.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	M.Sc.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		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	<ol style="list-style-type: none">1. To give students an overview of topics in general physics2. To understand an initial platform for core courses in Units and dimensions, vectors, Motion in straight line.3. Distinct between heat and heat temperature and formulate, reflected and refracted laws4. Making the students aware of the laws of static electricity, electric current.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none">1. List the various terms associated with general physics.2. provide the student with a clear and logical presentation of the basic concepts and principles of physics.3. Describe Newton's Laws of motion, work, energy and momentum, simple harmonic motion.4. Define Newton's Laws of motion.5. Discuss the simple harmonic motion.6. The student should be aware of the laws of static electricity.7. Generic skills such as communication, tolls of solving physics problems
Indicative Contents المحتويات الإرشادية	
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>We attempt to motivate the student through examples that demonstrate the role of physics in other disciplines, including engineering, chemistry, and medicine.</p> <p>Lectures, discussion, Problem solving, Simulation Method Practical presentation, projects, Self-learning</p>

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
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الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction; Concepts of unit and measurements, fundamental and derived units, units of length, weight, mass, time.
Week 2	Properties of Matter Dimensional Analysis, conversion of Units.
Week 3	Vectors; Coordinate Systems, Vector and Scalar Quantities, Some Properties of Vectors
Week 4	Components of a Vector and Unit Vectors Scalar Product of Vectors.
Week 5	The Force and Laws of Motion, The Concept of Force, Newton's First Law, Newton's Second Law, Mass and weight
Week 6	The Gravitational Force and Weight, Newton's Third Law, Free body diagram, Forces of Friction.
Week 7	Midterm exam
Week 8	Static Equilibrium and Elasticity, The torque, The Center of Gravity, The Rigid Object in Equilibrium, Examples,
Week 9	Work, Energy, and Power; Systems, Work Done by a Constant Force, Kinetic Energy and the Work–Kinetic Energy Theorem,
Week 10	Potential Energy, Conservation of energy, Transfer of energy, Power.
Week 11	Temperature and Heat; Temperature, Thermometers and the Celsius Temperature Scale, The Absolute Temperature Scale ,Thermal Expansion of Solids and Liquids

Week 12	Light; The Nature of Light, The Light Reflection and Refraction, The Rainbow, Fiber Optics.
Week 13	Electricity; Electric Charges, Electric Force, Electric Field, Electric potential, Capacitance, Capacitors, Dielectrics
Week 14	Magnetism; Magnetic Poles, Magnetic force, Magnetic Fields, Biot-Savart Law,
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Physics for Scientists and Engineers, :Saunders R. A. Serway, P College Publication 2017	online
Recommended Texts		No
Websites		

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي



Ministry of Higher Education and
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College of Engineering
Electrical and Electronics Engineering
Department



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	BASICS OF ENGLISH LANGUAGE		Module Delivery
Module Type	SUPPLEMENT		Theory Lecture Tutorial Seminar
Module Code	UR 102		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Sarah Rabea Nashee		e-mail
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	Sara.rabee@utq.edu.iq
Peer Reviewer Name	Ahmed j. Shkara	e-mail	
Review Committee Approval	03/06/2023	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	<ol style="list-style-type: none"> 1. To develop students' English language skills 2. To strengthen speaking and listening in English 3. Facilitate the learning of engineering specialization by mastering the English language to accept many educational resources related to engineering. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Develops speaking and discussion skills in English 2. The ability to form complete sentences in different tenses and to suit the dialogue time 3. Writing formal and informal letters 4. Mastering English grammar with the correct spelling of words 		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>Parts of speech (nouns, pronouns, verbs, adverbs, prepositions, conjunctions, with learning the structure of the sentences, quiz</u> <u>4 hour</u></p> <p><u>interjections); kinds of sentences (simple, compound, complex); subordinate clauses;</u> <u>4 hour</u></p> <p><u>change of sentences from simple to compound and vice versa; tenses; ; direct and indirect speech.</u> <u>4 hour</u></p> <p><u>Modal verbs</u> <u>2 hour</u></p> <p><u>prefixes and suffixes</u> <u>2 hour</u></p> <p><u>Politely request</u> <u>2 hour</u></p> <p><u>Conjunctions</u> <u>2 hour</u></p>		
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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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	5% (5)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	none			
	Report	1	5% (5)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1-7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	<u>Parts of speech (nouns, pronouns, verbs, adverbs, prepositions L1</u>
Week 2	<u>Parts of speech (nouns, pronouns, verbs, adverbs, prepositions L2</u>
Week 3	<u>Interjections l1</u>

Week 4	Interjections L2
Week 5	change of sentences from simple to compound and vice versa; tenses; ; direct and indirect speech. L1
Week 6	change of sentences from simple to compound and vice versa; tenses; ; direct and indirect speech. L2
Week 7	Verbs
Week 8	Mid-term Exam
Week 9	Writing the essay or article l1
Week 10	Writing the essay or article l1
Week 11	Modal verbs
Week 12	prefixes and suffixes
Week 13	Politely request
Week 14	Conjunctions
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	English Grammar, Raymond murfy, 1985	No
Recommended Texts	English structure , 2020	No
Websites	https://www.examveda.com/competitive-english/practice-mcq-question-on-grammar/	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

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





Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Department of Electrical and Electronics
Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ELECTRONIC PHYSICS		Module Delivery
Module Type	CORE		Theory Lecture
Module Code	UoB12345		
ECTS Credits	6		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	AbdullhSaiwan Majli	e-mail	abdallah_s@utq.edu.iq
Module Leader's Acad. Title	Asst.Professor	Module Leader's Qualification	M.sc.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval	20/06/2023	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	<ol style="list-style-type: none"> 1. To give students an overview of topics in electronic physics 2. To understand an initial platform for core courses in Atomic structure and energy level, Semiconductor Materials (Si, Ge and compound semiconductors: 3. Demonstrate knowledge of history and developed characteristics, operations, fundamental laws and analysis, and engineering applications related to electronic materials and devices. 4. Describe principles and basic concepts of electronic devices, characteristics, operations,... 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. List the various terms associated with electronic physics. 2. provide the student with a clear and logical presentation of the basic concepts and principles of electronic. 3. Demonstrate knowledge of history and developed characteristics, operations, fundamental laws and analysis, and engineering applications related to electronic materials and device. 4. Describe principles and basic concepts of electronic devices, characteristics, operation. 		
Indicative Contents المحتويات الإرشادية			
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	Active Lectures, discussion, Problem solving, presentation, Tutorials, Projects and Report Presentations , Self-learning		

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	47	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	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab. Report	1	10% (10)	Continuous	
		1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction: Atomic structure and energy level,
Week 2	Electrical conduction in Metals, semiconductors and insulators, Semiconductor Materials (Si, Ge and compound semiconductors:
Week 3	Extrinsic semiconductors, fermi level in semiconductor, Diffusion and carrier,
Week 4	Extrinsic semiconductors, fermi level in semiconductor, Diffusion and carrier,
Week 5	Qualitative Theory of P-N Junction, P-N Junction as a diode, diode equation, volt- amper Characteristics.
Week 6	Temperature dependence of V-I characteristic, ideal versus practical diode,
Week 7	Midterm exam
Week 8	Resistance levels (static and dynamic), transition and diffusion capacitances, diode equivalent circuits
Week 9	load line analysis, breakdown mechanisms in semiconductor diodes
Week 10	Diode Circuit Applications, Rectifiers, Zener diode voltage regulator
Week 11	Clipping circuits, clamping circuits وMultiplier voltage, filters and smoothing circuits
Week 12	Types of semiconductor Diode, photo diode, Light emitting diode, varactor diode, tunnel diode
Week 13	Solar cells, Schottky diode, s PIN diode, Shockley Diode
Week 14	
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المناهج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1-Robert L. Boylestad, and Louis Nashelsky, "Electronic Devices and Circuit Theory", 2-Thomas L. Floyd, "Electronic Devices: Conventional Current Version ",eighth edition,	online
Recommended Texts		No
Websites	http://www.pearsoned.co.uk/ http://www.ocw.mit.edu/courses	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

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

Note:

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



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



Ministry of Higher Education and
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Department of Electrical and Electronics
Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	APPLIED MATHEMATICS		Module Delivery
Module Type	BASIC		Theory Lecture Tutorial
Module Code	ER 205		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	1
Administering Department	EEE	College	Engineering
Module Leader		e-mail	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Huda Anwar	e-mail	huda@utq.edu.iq
Peer Reviewer Name	Dr. Ahmed A. Fadhil	e-mail	ahmed-abd-h@utq.edu.iq
Review Committee Approval		Version Number	1.0

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ER105	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Aims أهداف المادة الدراسية</p>	<ol style="list-style-type: none">1. To develop problem solving skills and understanding of basic differential equations and linear algebraic tools that are needed for the engineering applications.2. To understand different methods of solving differential equations beyond what is given in the high school.3. This course introduces the mathematic techniques needed to deal with engineering systems with a focus on the students' majors through choosing the differential and linear systems appropriate models4. This is a basic subject for most engineering students and in particular in electrical, biomedical, and mechanical engineering.5. To understand how to solve and formulate physical problems using differential equations and basic linear algebraic skills.6. To understand and solve basic partial differential equations.7. To understand and solve simple nonlinear systems.8. To have the intuition of the meaning of a linear system of equations and how to solve different types of these systems.9. To understand and apply some common concepts between linear algebra and differential equations through solving the eigenvalue problem.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none">1. To introduce students to specific and major oriented mathematical knowledge to apply concepts learned from ER105 and ER205 to solve more mathematically involved engineering problems.2. Learn and understand the basic definitions used in solving linear systems of equations.3. Learn and understand the basic definitions used in solving linear systems of equations and systems of differential equations through solving the eigenvalue problem.4. Learn and understand the basic definitions used in ordinary linear differential equations.5. Learn and understand the basic definitions used in ordinary nonlinear differential equations.6. Learn and understand the basic definitions used in partial differential equations.

<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following. <u>Part 1 – Introduction to Linear Algebra</u></p> <p>Introduction to linear systems of equations and how to solve them. Solution sets of linear systems. Linear Independence. Matrix operations, eigenvalues and eigenvectors. [16 hrs]</p> <p><u>Part 2 – Introduction to Differential Equations</u></p> <p>First order differential equations and their solution methods. [8 hrs] Second and higher order differential equations and their solution methods. [8 hrs] Laplace transform and its role in solving differential equations. [8 hrs] Systems of linear and nonlinear differential equations. [6 hrs] Introductory partial differential equations. [8 hrs] There will be a 2-hour tutorial each week that involves problems solving and reviewing for that week’s class material. [30 hr]</p>
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>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.</p>

<p>Student Workload (SWL) الحمل الدراسي للطالب</p>			
<p>Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل</p>	123	<p>Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا</p>	8.2
<p>Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل</p>	52	<p>Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا</p>	3.5
<p>Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل</p>	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (10)	5, 10	LO #1, 2, 3,4, and 5
	Assignments	3	15% (10)	2, 12	LO # 1, 2, 3,4, and 5
	Projects / Lab.	N/A	N/A	N/A	N/A
	Report	N/A	N/A	N/A	N/A
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1, 2, 3, and 4
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Part 1: Introduction to linear systems of equations and how to solve them. Solution sets of linear systems. Linear Independence.
Week 2	Matrix operations, matrix inverse, and characterization of invertible matrices.
Week 3	Subspaces and rank.
Week 4	Eigenvalues and eigenvectors with major specific application.
Week 5	Part 2: First order ordinary linear differential equations: Separation of variables, linear equations, exact equations, and solutions by substitutions.
Week 6	Continuing the discussion of first ODEs.
Week 7	Mid-term Exam
Week 8	Second and higher order ordinary linear differential equations: Reduction of order, homogeneous linear equations with constant parameters, and underdetermined coefficients.
Week 9	Second and higher order ordinary linear differential equations: variation of parameters, and Cauchy-Euler equations. Introduction if time permits to Laplace transform.
Week 10	Solving differential equations using the Laplace transform
Week 11	Solving a system of differential equations using the Laplace transform and eigenvalues
Week 12	Introducing some simple nonlinear differential equations and systems of nonlinear differential equations
Week 13	Partial differential equations: Introduction and the heat equation.

Week 14	Partial differential equations: The wave equation and if time permits giving the solution of nonhomogeneous partial differential equations.
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. D.Lay, S. Lay, and J. McDonald, Linear Algebra and Its Applications, 5 th Edition. 2. D. Zill, Advanced Engineering Mathematics, 6 th Edition.	Yes
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
<p>NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				



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



Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Electrical and Electronic Engineering
Department



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ELECTRICAL CIRCUIT II		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar
Module Code	EEE1211		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGII	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader	Dr. Ayman Nasih Salman	e-mail	a.younis@utq.edu.iq
Module Leader's Acad. Title	lecture	Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		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	<ol style="list-style-type: none"> 1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand the phasor relationships for circuit elements. 3. This course deals with the basic concept of A.C electrical circuits. 4. This is the basic subject for all electrical and electronic circuits subject. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To understand the maximum power transfer concept. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Recognize how electricity works in A.C electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Identify the basic circuit elements and their applications. 		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>Part A - Circuit Theory</u></p> <p>AC circuits I – Time dependent signals, average and RMS values. Capacitance and inductance, energy storage elements, simple AC steady-state sinusoidal analysis. [30 hrs]</p> <p>Revision problem classes [10 hrs]</p> <p>AC Circuits II - Phasor diagrams, definition of complex impedance, AC circuit analysis with complex numbers. Magnetically Coupled Circuits [30 hrs]</p> <p>RLC circuits - Frequency response of RLC circuits, simple filter and band-pass circuits, resonance and Q-factor [30 hrs]</p> <p>Revision problem classes [10 hrs]</p>		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			

Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
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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 أسبوعياً	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	-
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Introduction - Basic Concepts
Week 2	Sinusoidal Forcing, Complex Forcing, Phasors, and Complex Impedance,
Week 3	Sinusoidal Steady State Response

Week 4	Average Power, RMS, Introduction to Polyphase Circuits
Week 5	Mutual Inductance
Week 6	Linear and Ideal Transformers
Week 7	Circuits with Mutual Inductance
Week 8	Mid-term Exam
Week 9	Frequency Response of Series
Week 10	Frequency Response of Parallel Resonances, High-Q Circuits
Week 11	Complex Frequency, s-Plane, Poles and Zeros, Response Function,
Week 12	Passive Filter
Week 13	Two Port Networks, Admittance, Impedance
Week 14	Two Port Networks, Hybrid, and Transmittance Parameters
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to AC circuit
Week 2	Lab 2: Transformers1
Week 3	Lab 3: Transformers2
Week 4	Lab 4: Frequency Response of series RLC Circuits
Week 5	Lab 5: Frequency Response of parallel RLC Circuits
Week 6	Lab 6: Frequency Response of passive filter
Week 7	Lab 7: Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes

Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
<p>NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				



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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	COMPUTER SCIENCE		Module Delivery
Module Type	BASIC		Theory Lecture Lab Tutorial
Module Code	ER107		
ECTS Credits	4		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	
Administering Department	EEE	College	ER
Module Leader		e-mail	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval		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	<ol style="list-style-type: none">1. To understand how computers work.2. To understand, through the use of MATLAB, how to program a computer to solve problems in engineering and sciences.3. This course teaches the basic concepts of computations.4. This course introduces students to the fundamental coding algorithms that are part of all branches of engineering and sciences.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none">1. An understanding of how computers work and what is needed to formulate a problem and solve it with computers. At this stage, students learn how to define sets of variables and apply some simple conditional statements.2. An understanding of the fundamentals of programming using MATLAB and employ loops to repeat operations a desired amount of times. Define the different types of loops and describe their uses.3. Create functions that operate on a universal level and describe the advantages of user-defined functions.4. Create more complex, modularized programs with multiple user-created functions and use some tools that are specific to the MATLAB programming.5. An understanding of the broad usefulness of computer programming through solving different engineering problems.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>Part A – Basic Generic Coding Concepts</u></p> <p>This material is covered in the first six weeks of the class. The material is general enough such that it introduces students to the general theme of coding which is not specific to MATLAB coding style. The material includes basic data representation in computers, conditional statements and simple loops. [12 hrs]</p> <p><u>Part B – Advanced MATLAB Coding Concepts</u></p> <p>The material in the second part of the class deals with specific MATLAB coding concepts and features. In other words, it introduces students and gives them the ability to use in a hybrid mode the basic coding skills that are learned in the first part of the class and the MATLAB package capabilities to build more sophisticated and problem oriented chunks of codes as well as visualizing the data. [14 hrs]</p> <p>Note that there is a 2-hour lab each week with a lab-assignment that</p>

students have to complete by the next lab meeting to enhance and enforce students' understanding to the material given in the class.

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	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	All
	Assignments	10	20% (10)	2-6, 8-12	All
	Projects / Lab.	10	10% (10)	Continuous	All
	Report	N/A	N/A	N/A	
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO#1,2, and 3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Introduction to Computers and How They Represent Data
Week 2	Logic, Math, Functions, and Comments in MATLAB

Week 3	Conditional Statements
Week 4	Arrays and Loops
Week 5	Debugging and Introduction to GUI
Week 6	Matrices and Nested Loops
Week 7	Mid-term Exam
Week 8	Audio, Images, and Reading Data
Week 9	Matrix Math
Week 10	Plotting
Week 11	More on GUIs
Week 12	Modular Programming, Making bigger programs
Week 13	Cell Arrays
Week 14	Structures
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Holly Moore, "MATLAB for Engineers", 4 th Edition	Online
Recommended Texts		
Websites	1. https://www.mathworks.com/ 2. https://coursera.org/specializations/matlab-programming-engineers-scientists	

APPENDIX:

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

Note:

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



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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Chemistry		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	ER101		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	Petroleum and Gas engineering	College	Collage of Engineering
Module Leader	Name Ahmed Majeed Daife	e-mail	E-mail: ahmed.alketife@utq.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	13/06/2023	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

<p>Module Objectives أهداف المادة الدراسية</p>	<ol style="list-style-type: none">1. To acquire a reasonable level of knowledge in chemical in accordance with what is given among the different universities around the world, especially the high ranked ones.2. To understanding of the basic topics in chemistry and its applications in the field of laboratories with knowledge Appropriate on different chemistry axes.3. To gain good knowledge of the fields of using chemical methods in different fields of knowledge and the ability to diagnosis of the problems he faces and how to address them in order to be qualified to work in the industries of society.4. Outstanding students are eligible to complete their higher studies inside and outside the country and to be high qualified Engineer. The objective of the course is to strengthen the level scientific for students on the principles of chemistry.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none">1. Recognize how use chemical concentrations to work with chemicals.2. List the various methods of measuring chemical concentrations.3. Summarize what is meaning of mole, molar mass, calculations in grams and mole.4. Define solution preparation, molarity, normality, formality, PH, POH, solubility.5. Chemical equilibrium and chemical equations.6. Explain the introduction about acids and based, and buffers solution.7. Acid-base reactions equilibrium8. Analytical methods: qualitative analysis.9. Analytical methods: Titration.10. Forward titration.11. backward titration.12. Complex titration using ETDA.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Introduction to chemistry and measuring methods</u></p> <p>This chapter a details deception and introduction will be provided about the different kinds of available breached of chemistry sciences and the field that Petroleum and Gas Engineering are focused on and why?</p> <p>The available measuring methods of concertation used in the chemistry will be given and discussed in details including some relevant information about the importance of these measurements in oil and gas engineering. [10hrs]</p>

	<p>Mole and Molar mass –mass mole causations for elements and substances; Mole measurement calculation, using different methods for liquid and solid [10hrs]</p> <p>Molarity – Define the other methods of measuring the concentration, including molarity and normality and identify the relation between them, knowing how to measure PH and POH. [10 hrs]</p> <p>Chemical Equations – types of chemical equation; chemical stoichiometric, chemical equation equilibrium. [10hrs]</p> <p>Revision problem classes [6 hrs]</p> <p><u>Part B Acid base</u></p> <p>Acid –Base – equilibrium and buffers solution, specification of buffer solution, the calculations of acid based solutions; equivalent point [10 hrs]</p> <p>Titration: An introduction to titration; tools; phenomena; applciations . [7 hrs]</p> <p>Types of titrations: Backwards; forward; and complex [10 hrs]</p>
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

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

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5.6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	21	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	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	Introduction – Definitions and fundamental concepts
Week 2	Concretions of solutions
Week 3	Dilution Law, normality and molarity calculation
Week 4	Acid-Base Equilibrium
Week 5	Buffers Solutions
Week 6	Volumetric analysis
Week 7	Mid-term Exam + Quiz day
Week 8	Titration
Week 9	End Points and Equivalent Point
Week 10	Forward Titration
Week 11	Backward Titration
Week 12	Complex Titration using EDTA
Week 13	Presentation Students Day
Week 14	Seminar Day
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to chemical concentration calculation: Solubility.
Week 2	Lab 2: Acid – Based equilibrium
Week 3	Lab 3: volumetric analysis and Titration
Week 4	Lab 4: Buffer solutions
Week 5	Lab 5: Forward Titration
Week 6	Lab 6: Backward Titration
Week 7	Lab 7: Complex Titration

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	[1] Analytical_Chemistry_7e_by_Gary_D._Chris	Yes
Recommended Texts	[2] Fundamentals_of_Analytical_Chemistry_Ed Copyright Year: 2020, dissidents.	No
Websites	[3] Harris_-_Quantitative_Chemical_Analysis_-_8th_edition	

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.



Ministry of Higher Education and
Scientific Research - Iraq
University of Thi-Qar
College of Engineering
Department of Electrical and Electronics
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ELECTRONICS I		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial
Module Code	EEE 2121		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	2	Semester of Delivery	
Administering Department	EEE	College	Engineering
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	None	e-mail	None
Peer Reviewer Name	None	e-mail	None
Review Committee Approval	01/06/2023	Version Number	1.0

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	EEE 1220, EEE 1211	Semester	2
Co-requisites module	None	Semester	None

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The objective of this course is to teach operation and application of the basic electronic elements like diodes and transistors, DC and AC analysis of BJT and FET amplifiers, to make students understand the basics of operational amplifiers, oscillators and power amplifiers.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none">1- To understand the operation and application of diode.2- To understand the operation of BJT and perform AC/DC analysis3- To understand the operation of FET and perform small signal analysis.4- To design transistor amplifiers (BJT or FET) for the given gain, input-output impedance and frequency response specifications.
Indicative Contents المحتويات الإرشادية	<ul style="list-style-type: none">-Basic semiconductor concepts, current flow in semiconductors, physical structure and operation of PN junction.-Terminal characteristics of ideal and junction diodes, diode circuits, diode modeling of forward characteristics, Zener diode, diode application-rectifiers, clamping, clipping, voltage regulation, Schottky-Barrier diode, photodiodes, light emitting diode (LED)- Physical structure and operation of BJT, current-voltage characteristics of NPN BJT and PNP BJT, BJT circuit DC analysis, small-signal operation and models (CE, CB, CC), discrete BJT amplifier- Analog concept, transistor amplifier, single-stage and multi-stage amplifiers.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 6	LO #2, and 4
	Assignments	2	10% (10)	4, 12	LO # 2, and 4
	Projects / Lab.	2	10% (10)	Continuous	
	Report	0	10% (0)		
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Semiconductor diodes, P-N junctions, diode characteristics, the ideal-diode Model, the small-signal model, Zener diodes.
Week 2	Diode applications (rectifiers, clippers, clampers, voltage multipliers, Zener voltage regulators)
Week 3	Bipolar junction transistor (BJT) and its characteristics, DC biasing of BJTs.
Week 4	DC biasing of BJTs
Week 5	DC biasing of BJTs
Week 6	AC analysis of BJTs
Week 7	AC analysis of BJTs
Week 8	Midterm exam
Week 9	Field effect transistor (FET), FET types and their characteristics.
Week 10	DC biasing of FETs.

Week 11	DC biasing of FETs.
Week 12	FET Amplifiers
Week 13	FET Amplifiers
Week 14	Analysis of multi- stage BJT and FET multi-stage amplifiers, Input impedance, output impedance and gain calculations of multi-stage amplifiers.
Week 15	Analysis of internal circuits of Op-Amp.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1,2	Diode I-V characteristics (Ge +Si)
Week 3,4	Clipping & clamping circuits
Week 5,6	Zener diode characteristics and circuits as regulation.
Week 7,8	Input and output characteristics of BJT in CEC
Week 9,10	CEC -based Amplifier for mall signal
Week 11,12	Frequency response of small signal amplifier.
Week 13,14	FET characteristics and using as Amplifier and switch.
Week 15,16	Operational amplifier 741IC circuits and final exam.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Sedra, A. Smith, K. C., "Microelectronic circuits", 8th edition 2003.	Yes
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي