نموذج وصف البرنامج الأكاديمي





اسم الجامعة: جامعة كلكامش

الكلية/ المعهد: الكلية التقنية الهندسية

القسم العلمي: هندسة تقنيات الأجهزة الطبية

اسم البرنامج الأكاديمي او المهني: بكالوريوس

اسم الشهادة النهائية: بكالوريوس في هندسة تقنيات الأجهزة الطبية

النظام الدراسي: بولونيا

تاريخ اعداد الوصف:

التوقيع :

اسم رئيس القسم:

التاريخ :

التوقيع :

اسم المعاون العلمي:

التاريخ :



دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ

التوقيع

مصادقة السيد العميد

أ.د. امير حسين مراد

١. رؤية البرنامج

الريادة والتميز في التعليم الهندسي التقني والبحث العلمي في مجال هندسة تقنيات الأجهزة الطبية، من خلال إعداد مهندسين تقنيين يمتلكون الكفاءة العلمية والمهارية والقدرة على الابتكار، وفق معايير الجودة والاعتماد الأكاديمي.

٢. رسالة البرنامج

يسعى قسم هندسة تقنيات الأجهزة الطبية إلى تقديم تعليم هندسي تقني عالي الجودة قائم على المعرفة العلمية والتطبيق العملي، من خلال برامج أكاديمية متطورة ومختبرات حديثة، لإعداد كوادر هندسية قادرة على تشغيل وصيانة وتطوير الأجهزة الطبية، والإسهام في خدمة القطاع الصحي، وتعزيز البحث العلمي والتعاون مع المؤسسات الصحية والصناعية بما يلبي احتياجات سوق العمل.

٣. اهداف البرنامج

- إعداد مهندسين تقنيين يمتلكون المعرفة والمهارات التطبيقية في مجال الأجهزة الطبية .
- تطوير مهارات الطلبة في تشغيل وصيانة ومعايرة الأجهزة الطبية .
- تعزيز مهارات التفكير النقدي وحل المشكلات الهندسية .
- تطوير المناهج الدراسية بما يواكب التطورات العلمية والتكنولوجية الحديثة .
- دعم البحث العلمي والابتكار في مجالات الهندسة الطبية .
- ربط مخرجات التعليم بمتطلبات سوق العمل .
- تعزيز التدريب العملي والتطبيقي داخل المختبرات والمؤسسات الصحية .
- تطبيق معايير الجودة والاعتماد الأكاديمي والتحسين المستمر .

٤. الاعتماد البرامجي

معتمد من قبل وزارة التعليم العالي والبحث العلمي في جمهورية العراق

٥. المؤثرات الخارجية الأخرى

لا يوجد

٦. هيكلية البرنامج

هيكل البرنامج	عدد المقررات	وحدة دراسية	النسبة المئوية	ملاحظات *
متطلبات المؤسسة	5	15	%8.6	
متطلبات الكلية				
متطلبات القسم	53	225	%91.4	
التدريب الصيفي				
أخرى				

* ممكن ان تتضمن الملاحظات فيما اذا كان المقرر أساسي او اختياري .

7.وصف البرنامج

السنة / المستوى	رمز المقرر أو المساق	اسم المقرر أو المساق	الساعات المعتمدة	
			نظري	عملي
1	الاولى	MIT11301	مبادئ الهندسة الكهربائية (DC)	3
2	الاولى	TCE132	اساسيات الحاسوب (IC3)	1
3	الاولى	MIT11302	الرياضيات التفاضلية	5
4	الاولى	MIT11303	الرسم الهندسي	
5	الاولى	TCE131	حقوق الانسان والديمقراطية	2
6	الاولى	TCE134	اللغة الانكليزية 1	1
7	الاولى	MIT11304	الكيمياء الطبية	4
8	الاولى	MIT12301	مبادئ الهندسة الكهربائية (AC)	3
9	الاولى	MIT12302	الفيزياء الطبية	2
10	الاولى	MIT12303	الميكانيك	3
11	الاولى	MIT12304	الرياضيات التكاملية	5
12	الاولى	MIT12305	الورشة الهندسية	
13	الاولى	MIT12306	برمجة الحاسوب وتطبيقاتها 1	1
14	الاولى	TCE133	اللغة العربية	2
15	الثانية	MIT23301	اجهزة طبية المحتبرية1	3
16	الثانية	MIT23302	دوائر الكترونية 1	3
17	الثانية	MIT23303	مكائن كهربائية	3
18	الثانية	MIT23304	رياضيات الهندسية	4
19	الثانية	MIT23305	علم التشريح وعلم وظائف الاعضاء	2

20	الثانية	TCE233	جرائم نظام البعث في العراق	2
21	الثانية	TCE234	تطبيقات الحاسوب	1
22	الثانية	MIT24301	الاجهزة الطبية المختبرية 2	3
23	الثانية	MIT24302	دوائر الكترونية 2	3
24	الثانية	MIT24303	الالكترونيات الرقمية	3
25	الثانية	MIT24304	اجهزة الكيمياء سريرية	2
26	الثانية	MIT24305	المحولات و المستشعرات الطبية الحيوية	2
27	الثانية	TCE232	اللغة الانكليزية 2	2
28	الثانية	TCE231	اللغة العربية-2	2
29	الثالثة	MIT35301	أجهزة التشخيص الطبية 1	2
30	الثالثة	MIT35302	المعالج الدقيق	4
31	الثالثة	MIT35303	المجالات الكهرومغناطيسية	3
32	الثالثة	MIT35304	الاشارات و الانظمة	2
33	الثالثة	MIT35305	برمجة الحاسوب و تطبيقاتها 2	2
34	الثالثة	MIT35306	أدارة المشاريع	2
35	الثالثة	MIT36301	أجهزة التشخيص الطبية 2	2
36	الثالثة	MIT36302	نظم الالكترونية طبية	3
37	الثالثة	MIT36303	نظم الاتصالات	2

			الطبية	
38	الثالثة	MIT36304	الكترونيات القدرة	3
39	الثالثة	MIT36305	مشروع 1	2
40	الثالثة	MIT36306	برمجة الحاسوب المتقدم	3
41	الرابعة	MIT47301	الاجهزة العلاجية طبية 1	2
42	الرابعة	MIT47302	انظمة الليزر الطبية	3
43	الرابعة	MIT47303	نظم سيطرة	2
44	الرابعة	MIT47304	معالجة الاشارات الطبية الحيوية	2
45	الرابعة	MIT47305	مشروع 2	
46	الرابعة	MIT47306	اختياري 1	2
47	الرابعة	MIT48301	الاجهزة العلاجية طبية 2	2
48	الرابعة	MIT48302	هندسة اجهزة الاشعاع	2
49	الرابعة	MIT48303	الاطراف الاصطناعية و الروبوتات	4
50	الرابعة	MIT48304	اختياري 2	2
51	الرابعة	MIT48305	اختياري 3	2
52	الرابعة	MIT48306	اخلاقيات المهنة	3

8.مخرجات التعلم المتوقعة للبرنامج

المعرفة

- أن يكون الطالب قادراً على اقتراح خطط وبرامج عمل، خاصة في صيانة الأجهزة الطبية.
- أن يكون الطالب قادراً على التعامل مع الأجهزة الطبية بمختلف أنواعها من حيث نصبها وتشغيلها وكافة تطبيقاتها وبرامجها.
- أن يكون الطالب قادراً على تحليل وتقييم أداء الأجهزة الطبية وتحديد الاحتياجات لصيانتها وتحسينها، مما يعزز فهمه

لعملية الصيانة والتطوير في المجال الطبي.

- أن يكون الطالب قادراً على تحليل احتياجات سوق العمل وتطلعات شركات الأجهزة الطبية، وتطبيق المعارف والمهارات المكتسبة لتلبية تلك الاحتياجات بفاعلية عالية.

القيم

- أن يكون الطالب قادراً على تطوير حلول مبتكرة لتحسين رعاية المرضى وتقديم خدمات طبية متميزة.
- أن يكون الطالب قادراً على بناء شراكات مع المؤسسات الصحية لتبادل المعرفة والتجارب العملية.
- أن يكون الطالب قادراً على تعزيز الوعي الصحي وتثقيف المجتمع حول أهمية الصحة والسلامة.
- أن يكون الطالب قادراً على المساهمة في تطوير السياسات واللوائح المتعلقة بالأجهزة الطبية لضمان جودتها وسلامتها.

المهارات

- **أن يكون الطالب قادراً على تنفيذ عمليات صيانة وإصلاح للأجهزة الطبية المختلفة، مما يعزز مهاراته الفنية والتقنية في المجال.**
- **أن يكون الطالب قادراً على التعامل مع التكنولوجيا والأدوات الحديثة المستخدمة في صيانة وتطوير الأجهزة الطبية، مما يعزز قدراته في التكنولوجيا الحديثة والابتكار.**
- **أن يكون الطالب قادراً على تحليل البيانات وتقديم التقارير الفنية المفصلة حول أداء الأجهزة الطبية واقتراح التحسينات اللازمة، مما ينمي مهاراته في الاتصال والتحليل.**
- **أن يكون الطالب قادراً على التعامل مع المشكلات واتخاذ القرارات الفنية والهندسية في سياق العمل الطبي، مما ينمي قدراته في حل المشاكل واتخاذ القرارات بشكل مستقل ومسؤول.**

9.استراتيجيات التعليم والتعلم

- استراتيجية العصف الذهني
- استراتيجية العمل الجماعي
- استراتيجية المناقشة
- -استراتيجية دراسة حالة
- -استراتيجية التدريس الاستقرائي
- -استراتيجية الخرائط المفاهيمية
- -استراتيجية التعلم الذاتي

- -استراتيجية التعليم الإلكتروني
- استراتيجية المذاكرة
- استراتيجية الاستنتاج
- استراتيجية الممارسة المتباعدة
- استراتيجية التبديل بين الأفكار
- -استراتيجية تقديم الأمثلة

10.طرائق التقييم

أ- الاختبارات اليومية
ب- الاختبارات الفصلية
ج- التقارير الأسبوعية
د- الحضور اليومي والمشاركة
ه- بحث التخرج

11.الهيئة التدريسية

أعضاء هيئة التدريس

الرتبة العلمية	التخصص		المتطلبات/المهارات الخاصة (ان وجدت)		اعداد الهيئة التدريسية	
	عام	خاص			ملاك	محاضر
أ.د امير حسين مراد	هندسة كهرباء	هندسة حاسبات | تميز الانماط			✔	
م.د لينا نصير قاسم	هندسة طب حياتي	هندسة اجهزة طبية			✔	
م.د هند عادل جعفر	هندسة طب حياتي	الروبوتات الحيوية			✔	
م.م جنات طارق فنوص	تقنيات الحاسوب	تقنيات الحاسوب			✔	
م.م بتول رافد ناطق	هندسة معلومات واتصالات	هندسة معلومات واتصالات			✔	
م.م سامر رزاق هلال	تصنيع مؤتمت	انظمة تصنيع متقدم			✔	
م.م زينة علي عبد	هندسة طب حياتي	هندسة طب حياتي			✔	

التطوير المهني

توجيه أعضاء هيئة التدريس الجدد

-عمل سمنرات وعروض تقديمية أسبوعيا لتطوير مهارة أعضاء التدريس في القاء المحاضرات او البحوث العلمية وطرق التواصل الفعال مع الحضور.
-حثهم على المشاركة في دورات ومؤتمرات علمية وغيرها من الأنشطة العلمية والورش الاكاديمية.

-دعمهم للمشاركة في المؤتمرات الخارجية واعمال خدمة المجتمع المختلفة.

التطوير المهني لأعضاء هيئة التدريس

- الاسهام في إقامة مؤتمر الكلية الدولي السنوي خلال عرض أعمالهم أو الاشراف على تنظيمه.
- تحسين الأداء الشخصي للكادر التدريسي وتعزيز تقدمهم الوظيفي.
- المشاركة الفاعلة بإقامة وحضور أنشطة التطوير المهني المستمر مثل ورش العمل والندوات او تنظيم ملتقى علمي او محا رات توعوية.

12.معيار القبول

القبول مركزي من وزارة التعليم العالي والبحث العلمي بالاعتماد على درجات الطالب في الصف السادس الاعدادي .كما توجد قنوات متعددة للقبول وتشمل القبول العام، قناة المتميزين، ذوي الشهداء.

13.أهم مصادر المعلومات عن البرنامج

١. المصادر المشتركة للمناهج بالتوأمة مع الجامعة التقنية الوسطى
٢. المكتبة العلمية في الكلية
٣. الأنترنت
٤. البحوث العلمية
٥. الموقع الالكتروني لوزارة التعليم العالي والبحث العلمي.

14.خطة تطوير البرنامج

أ- تحديث وتطوير المناهج حسب متطلبات سوق العمل من خلال عمل اللجان المختصة بتحديث المناهج

ب- عمل استبيانات بصورة دورية للجهات المستفيدة من الطلبة والمجتمع وارباب العمل حول رسالة واهداف الكلية والمناهج الدراسية وطرق التعليم والتقييم.

ج- الانفتاح على المجتمع وتقديم النشاطات التطوعية

د- توجيه بحوث الطلبة نحو المشاريع التطبيقية والتي تعالج مشاكل المجتمع

مخطط مهارات البرنامج																			
			مخرجات التعلم المطلوبة من البرنامج																
السنة / المستوى	رمز المقرر	اسم المقرر	اساسي أم اختياري	المعرفة				المهارات				القيم							
				أ1	أ2	أ3	أ4	ب1	ب2	ب3	ب4	ج1	ج2	ج3	ج4				
الاولى	MIT11301	مبادئ الهندسة الكهربائية (DC)	اساسي																
الاولى	GU134	اساسيات الحاسوب (IC3)	اساسي																
الاولى	MIT11302	الرياضيات التفاضلية	اساسي																
الاولى	MIT11303	الرسم الهندسي	اساسي																
الاولى	TCE131	الديمقراطية و حقوق الانسان	اساسي																
الاولى	TCE134	اللغة الانكليزية 1	اساسي																
الاولى	MIT11304	الكيمياء الطبية	اساسي																
الاولى	MIT12301	مبادئ الهندسة الكهربائية (AC)	اساسي																
الاولى	MIT12302	الفيزياء الطبية	اساسي																
الاولى	MIT12303	الميكانيك	اساسي																
الاولى	MIT12304	الرياضيات التكاملية	اساسي																
الاولى	MIT12305	الورشة الهندسية	اساسي																
الاولى	MIT12306	برمجة الحاسوب وتطبيقاتها 1	اساسي																

الاولى	TCE133	اللغة العربية	اساسي												
الثانية	MIT23301	اجهزة طبية المحتبرية1	اساسي												
الثانية	MIT23302	دوائر الكترونية 1	اساسي												
الثانية	MIT23303	مكائن كهربائية	اساسي												
الثانية	MIT23304	رياضيات الهندسية	اساسي												
الثانية	MIT23305	علم التشريح وعلم وظائف الاعضاء	اساسي												
الثانية	GU234	جرائم نظام البعث في العراق	اساسي												
الثانية	GU233	تطبيقات الحاسوب	اساسي												
الثانية	MIT24301	الاجهزة الطبية المختبرية 2	اساسي												
الثانية	MIT24302	دوائر الكترونية 2	اساسي												
الثانية	MIT24303	الالكترونيات الرقمية	اساسي												
الثانية	MIT24304	اجهزة الكيمياء سريرية	اساسي												
الثانية	MIT24305	المحولات و المستشعرات الطبية الحيوية	اساسي												
الثانية	GU133	اللغة الانكليزية 2	اساسي												
الثانية	GU231	اللغة العربية-2	اساسي												
الثالثة	MIT35301	أجهزة التشخيص الطبية 1	اساسي												

الثالثة	MIT35302	المعالج الدقيق	اساسي												
الثالثة	MIT35303	المجالات الكهرومغناطيسية	اساسي												
الثالثة	MIT35304	الاشارات و الانظمة	اساسي												
الثالثة	MIT35305	برمجة الحاسوب و تطبيقاتها 2	اساسي												
الثالثة	MIT35306	أدارة المشاريع	اساسي												
الثالثة	MIT36301	أجهزة التشخيص الطبية 2	اساسي												
الثالثة	MIT36302	نظم الالكترونية طبية	اساسي												
الثالثة	MIT36303	نظم الاتصالات الطبية	اساسي												
الثالثة	MIT36304	الكترونيات القدرة	اساسي												
الثالثة	MIT36305	مشروع 1	اساسي												
الثالثة	MIT36306	برمجة الحاسوب المتقدم	اساسي												
الرابعة	MIT47301	الاجهزة العلاجية طبية 1	اساسي												
الرابعة	MIT47302	انظمة الليزر الطبية	اساسي												
الرابعة	MIT47303	نظم سيطرة	اساسي												
الرابعة	MIT47304	معالجة الاشارات الطبية الحيوية	اساسي												
الرابعة	MIT47305	مشروع 2	اساسي												
الرابعة	MIT47306	اختياري 1	اساسي												

الرابعة	MIT48301	الاجهزة العلاجية طبية 2	**اساسي**												
الرابعة	MIT48302	هندسة اجهزة الاشعاع	**اساسي**												
الرابعة	MIT48303	الاطراف الاصطناعية و الروبوتات	**اساسي**												
الرابعة	MIT48304	اختياري 2	**اساسي**												
الرابعة	MIT48305	اختياري 3	**اساسي**												
الرابعة	MIT48306	اخلاقيات المهنة	**اساسي**												

- يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقيي

MODULE DESCRIPTION FORM

المرحلى الاولى

نموذج وصف المواد الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Support**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT11303**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	**Samer Razzaq Hilal**		**e-mail**	Samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	**Samer Razzaq Hilal**		**e-mail**	Samer.r.hilal@gu.edu.iq	
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	Ameer.h.morad@gu.edu.iq	
Scientific Committee ApprovalDate			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims	The module aims for the Basics of Engineering Drawing courseware is to teach the student the basic commands necessary for professional 2D drawing, design, and drafting using AutoCAD. Upon completion of the course, the student will: • Become familiar with the AutoCAD user interface. • Understand the fundamental concepts and features of AutoCAD. • Use the precision drafting tools in AutoCAD to develop accurate technical drawings. • Present drawings in a detailed and visually impressive manner. • Develop a level of comfort and confidence with AutoCAD through hands-on experience.
Module Learning Outcomes	Upon completion of the course, students should be able to: 1. The student will describe key terms and concepts associated with drafting and the drafting profession. • Identifying software drafting tools (e.g. AutoCAD, Micro station, SolidWorks, and Google Sketch Up). 2. The student will identify elements of the AutoCAD software interface. • Starting the AutoCAD program from the start menu. • Using existing AutoCAD templates to create drawing documents. • Identifying file extensions (such as.dwg, dxf, dwt, and .bak) and file locations. • Creating, formatting, editing and saving an Auto CAD drawing. 3. The student will demonstrate an understanding of the skills necessary to create basic 2D AutoCAD drawings. • Drawing lines, curves, circles, ellipses, rectangles, polygons, and donuts. • Modifying a drawing using the Erase tool. • Identifying and using the various types of Object Snaps and Auto tracking. • Using the offset tool, drawing points, construction lines and rays. 4. The student will demonstrate the ability to modify an AutoCAD drawing. • Creating and managing multiple layers that define line color, line width, line type, etc. • Identifying and using object editing tools (such as fillet, chamfer, break, join, trim, extend, lengthen, and scale). • Arranging and patterning objects with move, copy, mirror, rotate, align, and array. 5. The student will demonstrate an understanding How to assign: Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space. 6. The student will demonstrate an understanding Dealing with: Text, Style, M text, Scale text, Spell, 7. The student will demonstrate the Object viewing. • Zooming techniques

	• Panning techniques 8. The student will demonstrate the ability to output drawings in AutoCAD. 9. Drawing 3d modeling. 10. Drawing the Exercises.
Indicative Contents	Indicative content includes the following. **Basic Drawing & Editing Commands** • Drawing Lines • Erasing Objects • Drawing Lines with Polar Tracking • Drawing Rectangles • Drawing Circles • Undo and Redo Actions [20 hrs.] **Making Changes in Your Drawing** • Selecting Objects for Editing • Moving Objects • Copying Objects • Rotating Objects • Scaling Objects • Mirroring Objects • Editing with Grips [4 hrs.] **Display Control** • Zoom • Pan • Redraw • Clean Screen. [4 hrs.] **Adding Dimensions** •Dimensioning Concepts •Adding Linear Dimensions •Adding Radial and Angular Dimensions •Editing Dimensions [4 hrs.] **Hatching** •Hatching •Editing Hatches [4hrs] **Printing Your Drawing** •Printing Layouts •Print and Plot Settings [4 hrs.] **3D MODELLING, Convert** 2D to 3D, Solid Editing [19 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	When it comes to learning and teaching engineering drawing using AutoCAD, there are several strategies that can be effective. Here are some recommendations: 1. Familiarize with the Software: Before diving into engineering drawing concepts, it's important to become familiar with the AutoCAD software. This includes understanding the user interface, basic tools, and commands. Start with introductory tutorials or online resources that cover the basics of AutoCAD. 2. Start with Fundamentals: Begin by teaching the fundamental concepts of engineering drawing, such as orthographic projection, isometric projection, dimensioning, and tolerancing. Explain the principles and techniques used in creating accurate and clear technical drawings. 3. Hands-on Practice: Engineering drawing is a practical skill, so provide ample opportunities for hands-on practice. Assign exercises and projects that require students to create different types of drawings using AutoCAD. Encourage them to explore and experiment with various tools and commands. 4. Step-by-Step Instructions: Break down complex drawing tasks into smaller, manageable steps. Provide step-by-step instructions and demonstrations using AutoCAD, showing students how to execute each step effectively. This approach helps students understand the workflow and build their confidence. 5. Visual Aids and Examples: Utilize visual aids, such as slides, diagrams, and examples, to reinforce concepts. Show real-world engineering drawings and explain how they were created using AutoCAD. Visual representations can enhance understanding and make abstract concepts more tangible. 6. Group Activities and Collaboration: Promote collaboration among students by assigning group activities or projects. This allows them to work together, share knowledge, and learn from one another. Encourage students to discuss their approaches and problem-solving techniques related to engineering drawing in AutoCAD. 7. Provide Feedback: Regularly provide constructive feedback on students' drawings. Highlight areas for improvement, suggest alternative methods, and point out common mistakes. This feedback loop is crucial for students to refine their skills and develop a deeper understanding of engineering drawing principles. 8. Stay Updated with AutoCAD Features: AutoCAD is regularly updated with new features and enhancements. Stay up to date with these changes to ensure you're teaching the latest tools and workflows. Familiarize yourself with new capabilities that can improve efficiency and accuracy in engineering drawing. 9. Online Resources and Communities: Encourage students to explore online resources, tutorials, and communities dedicated to AutoCAD and engineering drawing. There are numerous websites, forums, and YouTube channels that offer valuable content and support for learning AutoCAD. 10. Project-Based Learning: Incorporate project-based learning into the curriculum, where students can apply their engineering drawing skills to real-world scenarios. Assign projects that simulate industry-related tasks, such as creating architectural plans, mechanical assemblies, or electrical schematics using AutoCAD.

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل 15 اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعي	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعي	4
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**	2	20% (20)	5, 12	(LO #3,4) (LO #5,6)
	Online Assignments	3	6% (6)	Continuous	(LO # 3-5) (LO # 6-10)
	Projects	1	10% (10)	13	All
	Onsite assignment	4	1% (1)	4, 5, 10, 11	LO # 3-9
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-5
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Introduction to Autodesk AutoCAD** • Starting the Software • User Interface • Working with Commands • Cartesian Workspace • Opening an Existing Drawing File • Saving a Drawing File
Week 2	**Basic Drawing & Editing Commands** • Drawing Lines • Erasing Objects • Drawing Lines with Polar Tracking

	• Drawing Rectangles • Drawing Circles • Undo and Redo Actions
Week 3	**Projects - Creating a Simple Drawing** • Create a Simple Drawing • Create Simple Shapes
Week 4	**Drawing Precision in AutoCAD** • Using Running Object Snaps • Using Object Snap Overrides • Polar Tracking at Angles • Object Snap Tracking • Drawing with Snap and Grid
Week 5	**Making Changes in Your Drawing** • Selecting Objects for Editing • Moving Objects • Copying Objects • Rotating Objects • Scaling Objects • Mirroring Objects • Editing with Grips
Week 6	**Advanced Object Types** • Drawing Arcs • Drawing Polylines • Editing Polylines • Drawing Polygons • Drawing Ellipses
Week 7	**Advanced Editing Commands** • Trimming and Extending Objects • Stretching Objects • Creating Fillets and Chamfers • Offsetting Objects • Creating Arrays of Objects
Week 8	Mid-term exam
Week 9	**Adding Dimensions** •Dimensioning Concepts •Adding Linear Dimensions •Adding Radial and Angular Dimensions

	•Editing Dimensions **Text** •Working with Annotations •Adding Text in a Drawing •Modifying Multiline Text •Formatting Multiline Text •Adding Notes with Leaders to Your Drawing
Week 10	**Hatching** •Hatching •Editing Hatches
Week 11	3D modeling
Week 12	Convert 2D To 3D.
Week 13	Exercises drawing
Week 14	**Printing Your Drawing** •Printing Layouts •Print and Plot Settings
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	D. A. Madsen, D. P. Madsen, and J. E. Briesacher, Engineering Drawing and Design, 5th ed., Clifton Park, NY: Delmar Cengage Learning, 2011.	Yes
Recommended Texts	F. E. Giesecke, A. Mitchell, H. C. Spencer, I. L. Hill, and J. T. Dygdon, Technical Drawing with Engineering Graphics, 15th ed., Upper Saddle River, NJ: Pearson, 2016.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Fundamentals of Electrical Engineering (DC)**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT11301**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Asaad Mubdir Jassim		**e-mail**	hindadil.alhaddad@gmail.com	
Module Leader's Acad. Title	Asst. Lecturer		**Module Leader's Qualification**	M.Sc	
Module Tutor	Asaad Mubdir Jassim		e-mail	saffa.k.burhan@gu.edu.iq	
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To develop knowledge on standard units of electricity and understanding of DC circuit theorems. 2. To understand voltage, current and power of DC circuits. 3. To learn the basic concept of DC electrical circuits connections. 4. To explain the DC electrical circuits. 5. To understand basic laws of electricity. 6. To perform DC-network theorem. 7. To perform DC-circuit analysis methods. 8. To understand independent sources and dependent sources.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	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. Describe electrical power, voltage, and current. 5. Define Ohm's law and define the relation between voltage, resistance, and current. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of power and energy in electric circuit. 8. Discuss the various properties of resistors connections. 9. Explain the two Kirchhoff's laws used in circuit analysis. 10. Identify the implementation of resistor circuit's connection. 11. Learn measurements of voltage ad current. 12. Practical Identification of resistance based on color code.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. DC circuits – Current and voltage definitions, and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law, Network reduction, Introduction to mesh and nodal analysis. [20 hrs] Conversion of delta – connected resistance into an equivalent Wye connection & Vic versa. [10 hrs] Fundamentals of the Power sources connected in parallel, Thevenin and Norton equivalent circuits, current and voltage division, Loop current method, Super position method ,maximum power transfer, Non- linear direct current circuit [20 hrs] Independent sources and dependent sources [10 hrs] source transformation [5 hrs] Revision problem classes [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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	5
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, LO# 10 and 11
	Online Assignments	2	10% (10)	2, 12	LO # 3, 4, LO# 6, 7
	Projects	1	6% (6)	Continuous	LO# 1-12
	lab	10	10% (10)	Continuous	LO# 1-12
	Report	1	4% (4)	13	LO # 5, 8, 9, 12
Summative assessment	**Midterm Exam**	3 hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Symbols and abbreviations, Units, Electric circuits, and its elements.
Week 2	The direct–current network (Ohm's law, Kirchhoff's voltage and current laws & their use in network).
Week 3 **Week 4**	Series elements and Voltage Division Parallel elements and Current Division
Week 5	Power sources are connected in parallel,
Week 6 **Week 7**	Circuit analysis methods: 1- Node voltage method. 2- Loop current method.
Week 8	Mid-term exam
Week 9	Conversion of delta–connected resistance into an equivalent Wye connection & Vic versa
Weeks 10-13	Circuit analysis Theorems: 1. Superposition 2. Thevenin 3. Norton 4. Maximum power
Weeks 14-15	Independent sources and Dependent sources, source transformation and preparation for final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to electrical elements, sources, and measuring devices related to electrical circuits.
Week 2	Resistance measurement based on AVO meter readings and color code identification.
Week 3	Verification of Ohm's Law
Weeks 4-5	Verification of KVL and KCL
Weeks 6-7	Verification of Thevenin's and Norton's theorems
Weeks 8-9	Verification of the superposition theorem
Week 10	Verification of the maximum power transfer theorem
Week 11	Verification of the Nodal Voltage Theorem
Week 12	Verification of the Mesh Theorem
Weeks 13-14	practical implementation of Independent sources and Dependent sources
Week 15	Preparation for 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	Electric Circuits Seventh Editionو Schaum's Outline Series	No
Websites	https://www.youtube.com/watch?v=SfKw8bHk7-o (for practical implementation of Independent sources and Dependent sources, **Weeks 13-14**)	

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	Differential Mathematics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT11303				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	**Samer Razzaq Hilal**		**e-mail**	Samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Asst. Lecturer		**Module Leader's Qualification**	M. Sc	
Module Tutor	**Samer Razzaq Hilal**		**e-mail**	Samer.r.hilal@gu.edu.iq	
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of Differential calculus through a broad range of Differentiation techniques. 2. To understand limits and theory of derivative and apply it on various types of functions. 3. This is the basic subject for all engineering fields. 4. Demonstrate basic knowledge and understanding of a core of plane analytical geometry, algebra and applied mathematics. 5. Introduce students to Derivatives of trigonometric functions and their inverses.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recall basic concepts of calculus: functions, variables, limits, and continuity. 2. Use the limit laws to evaluate the limit of a function. 3. Discuss continuity at a point and continuity over an interval. 4. Understand transcendental functions and how a function and its inverse are related. 5. Define Plane analytical geometry and identify how conic sections are formed in addition to define both in words and in algebraic formulae, a circle and its center and radius, and an ellipse and its foci. 6. Learn how to convert rectangular coordinates to polar coordinates and vice versa, as well as plot points using polar coordinates. 7. Differentiate algebraic and transcendental functions Midterm 8. Discuss Chain rules and applications of the derivatives. 9. Define determinants and understand their relation to matrices · Also explain the methodology for finding a determinant. 10. Learn how to solve Linear equations by Cramer's rule.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. 1. Limits and Continuity, Trigonometric functions, and their inverses. Hyperbolic and inverse hyperbolic functions, Exponential function and logarithmic function. Plane analytical geometry, parabola & ellipse, hyperbola. [25 hrs] 2. Polar coordinates, Theory and rules of derivatives, Implicit Differentiation and Chain rules, Derivatives of trigonometric functions and their inverses. Derivatives of Transcendental functions and their inverses. [33 hrs] 3. Properties of determinants, Solution of Linear equations by Cramer's rule. [10 hrs] 4. Revision problem classes [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ15 اسبوعا			
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	**125**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Limits and Continuity
Week 2	Transcendental functions- trigonometric functions, and their inverses.
Week 3	Transcendental functions-Hyperbolic and inverse hyperbolic functions
Week 4	Transcendental functions-Exponential function and logarithmic function.
Week 5	Plane analytical geometry, parabola & ellipse, hyperbola.
Week 6	Polar coordinates.
Week 7	Mid-term Exam
Week 8	Theory and rules of derivatives
Week 9	Implicit Differentiation and Chain rules.
Week 10	Derivatives of trigonometric functions Derivatives of inverse trigonometric functions.
Week 11	Derivatives of the exponential and natural logarithms functions.
Week 12	Derivatives of Hyperbolic and inverse hyperbolic functions.
Week 13	Applications of the derivatives.
Week 14	Determinants and properties of determinants.
Week 15	Solution of Linear equations by Cramer's rule. + Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Engineering Mathematics I (**pdf**)	No
Recommended Texts	Thomas ' Calculus (**pdf**) Fouteenth edition Based on the original work by GEORGE B. THOMAS, JR.	No
Websites	https://elearningatria.files.wordpress.com/2013/10/differential-calculus-1-23.pdf http://dl.konkur.in/post/Book/Paye/Thomas-Calculus-14th-Edition-%5Bkonkur.in%5D.pdf	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**MEDICAL CHEMISTRY**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT11307**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**		
Peer Reviewer Name	Dr. Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	-
Co-requisites module	None	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1- To write and balance chemical equation which many calculations depend on. 2- To convert chemical formula to components composition percent or to conclude empirical formula depending upon composition percent. 3-To predict about the economic pathway for specific reaction to happen depending upon stoichiometric calculations of balanced chemical equations. 4-To Know how to prepare buffers with different ranges of pH using acids with suitable dissociation constant of acid. 5- To understand the effect of common ions on equilibrium of reversible reactions. 6-To focus on theoretical working principles of spectrophotometric instruments. 7- to discuss the importance of isotopes in diseases treatment and diagnosis.
	At ending of course, the student will: 1- Able to give chemical compounds their systematic names and to write their chemical formulae. 2- Know how to calculate concentrations of chemicals and to express them in various concentration terms. In addition to convert one term to another. 3- Calculate the compound composition percent according to chemical formula or know empirical formula depending on compounds composition percent. 4- Write chemical equations of different reactions and balance them and predict the limiting reactant in addition to the expected weight of products. 5-Eestimate the reaction direction according to calculation of equilibrium constant of reversible reactions. 6-Know how to prepare buffers and how buffer work? 7- Understand importance and wide application of slightly soluble salts. 8- Perform the statistical treatment of analytical results and source of errors. 9- Recognize the importance of galvanic cells in current generation and role of electrolytic cells in metallic electroplating. 9- Consider zero, 1st and 2nd laws of thermodynamic processes, and evaluate thermodynamic functions of work, enthalpy, heat, internal energy and giving judgment of spontaneous process or not by entropy and Gibbs free energy. 10- List the components of photometric determination techniques, in addition to principals of their works. 11- Identify the photometric instrumentations such as FIS, FT-IR spectrophotometer,

	and mass spectrophotometry. 12- Emphasize the vital role of isotopes in diagnosis and diseases treatment.
Indicative Contents المحتويات الارشادية	Isotopes, Chemical formula, Units conversion (5 hr) Normality, Formality, Molarity, Molality, Mole fraction, Mill equivalent, ppm, ppb, mass percent, mass/vol percent. (10 hr) Stoichiometry (4 hr) Chemical equilibrium (4 hr) dissociation constant (5 hr) pH (4 hr) Buffers (5 hr) common ion (4 hr) Solubility product constant (4 hr) Statistical treatment, average, range, standard deviation, variance, Absolute error, relative error. (6 hr) Redox reactions, Electrochemistry, electrolytes, Nernst equation, cell potential (6 hr). 1st law of thermodynamic, Reversible and irreversible process, Heat capacities, adiabatic process, Isothermal processes (6 hr). 2nd law of thermodynamic, entropy, Gibbs free energy (4 hr). Photochemistry, electromagnetic spectrum, Beer Lambert law (6 hr). IR Spectrophotometer, mass spectroscopy, FIS, FES (6 hr). Potentiometer, conductive meter, pH-meter (5 hr).

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Homework assignments, written exam, Quizzes, seminars, reports, practical tests and Online tests

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	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**	15min/ 2 times	20% (20)	5th , 12th	LO# 1st – 5th LO# 10th – 12th
	Online Assignments	5min/ 2 times	10% (10)	6th ,13th	LO# 1st LO# 10th
	Lab.	Each lab/ 5 times	5% (5)	3rd , 4th , 5th , 6th , 7th	LO# 1st -2nd , LO# 3rd LO# 4th LO# 5th LO# 6th – 7th
	Seminar	10min/ One time	5% (5)	6th	LO# 2nd – 5th
Summative assessment	**Midterm Exam**	180 min/ one time	10%	8th	LO# 1st – 10th
	Final Exam	240min/ one time	50%	16th	
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج االسبوعي النظري

	Material Covered
Week 1	Introduction, Units conversion, Isotopes, Chemical formula and chemical equation
Week 2	Methods of expressing analytical concentrations: Normality, Formality, Molarity, Molality, Mole fraction, Mill equivalent, ppm, ppb, wt. and vol. percent ratio.
Week 3	Stoichiometry
Week 4	Chemical equilibrium
Week 5	Acid-Base dissociation constant
Week 6	pH-scale, buffer solution+ Solubility of precipitations, common ion effect
Week 7	Mid-term Exam
Week 8	Errors & statistical treatment of analytical data sources of errors, types of errors, average mode, range, average derivation, standard deviation, relative standard deviation, variance, method of expressing accuracy, Absolute error, relative error.
Week 9	Redox reactions, balancing of redox equation
Week 10	Electrochemistry: electrochemical cells, types of electrodes, electrolytes, Nernst equation, cell potential
Week 11	Thermodynamic, Zero and first law of thermodynamic, Reversible and irreversible expansion, Heat capacities, adiabatic expansion, Isothermal processes.
Week 12	Second law of thermodynamic: spontaneous processes, entropy and Gibbs free energy.
Week 13	Photochemistry (spectrophotometer analysis), Regions of electromagnetic spectrum, Absorption and emission of electromagnetic spectrum, Beer Lambert law, instrumentations components of spectrophotometer.
Week 14	IR Spectrophotometer, mass spectroscopy, flame ionization spectrophotometry.
Week 15	Potentiometer, conductive meter, pH-meter and some other applications of chemical sensors+ Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Principals of qualitative analysis.
Week 2	Qualitative analysis of cations of 1st and 2nd groups.
Week 3	Qualitative analysis of cations of 3rd and fifth groups.
Week 4	Introduction to Quantitative (volumetric) analysis and types of standard substance in titration, principles and calculations of titration.
Week 5	How to prepare solution of primary standard materials and to standardize secondary standard substance of HCl, (acid-base titration)
Week 6	Standardization secondary standard substance of NaOH and its application by determination of vinegar acidity.
Week 7	Determination of residual chloride in tape water by titration against silver nitrate (precipitation titration).

Learning and Teaching Resources مصادر التعلم والتدريس		
Required Texts		
Recommended Texts	**1- ESSENTIALS OF GENERAL CHEMISTRY** **By EBBING GABBON RAGSDALE** **2- CHEMICAL PRINCIPLES** **By Steven S Zumdahl - 4th 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	**English Language 1**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TCE132**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Atheer Abdulkhaleq		**e-mail**	atheer .bdulkhaleq @gu.edu.iq	
Module Leader's Acad. Title	Assistant Proffessor		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	The module aims of English Language (1) are designed to help learners at the beginner – pre-intermediate level develop their English language skills and achieve specific learning objectives, By the end of this course, students will: 1. Grammar Mastery: Develop a strong command of grammar rules, including possessive forms, question words, pronouns, prepositions, present simple, past simple, present continuous, past continuous, comparative and superlative adjectives, verb patterns, modal verbs (have/got to, should, must), time and conditional clauses, present perfect, past perfect, reported statements, and more. 2. Vocabulary Expansion: Expand their vocabulary in various contexts, covering numbers, family members, rooms and furniture, locations in and out of town, food and dining, parts of speech, synonyms, antonyms, and phrasal verbs. 3. Everyday English Proficiency: Develop practical language skills for everyday communication, including greetings, introductions, short answers, conversations, and expressions commonly used in daily life. 4. Reading Comprehension: Improve their reading comprehension skills through the analysis of diverse texts, including stories, articles, and informative content on a wide range of topics. 5. Writing Competence: Enhance their writing abilities by composing informal letters, using linking words, writing reviews of books or films, and crafting stories. 6. Critical Thinking and Analysis: Develop critical thinking skills by analyzing and discussing texts, comparing and contrasting information, and drawing conclusions from reading materials. 7. Cultural Awareness: Gain cultural insights through readings and discussions about various cultures and places around the world, fostering a broader worldview. 8. Effective Communication: Improve their ability to express ideas clearly and confidently in both spoken and written forms, making them effective communicators in English. 9. Language Assessment: Prepare for assessments, including a midterm exam, by reviewing and demonstrating their understanding of grammar, vocabulary, and reading comprehension. 10. Independent Learning: Develop independent learning skills, enabling them to continue improving their English language proficiency beyond the course. 11. Language Fluency: Work towards achieving fluency in English, allowing them to engage in conversations, express thoughts, and write coherently with ease. 12. Cultural Competency: Build cultural competence and sensitivity through exposure to diverse texts and discussions about different cultures and lifestyles. These course goals reflect the overarching objectives of the English class and provide a clear direction for student learning and language development throughout the 15-week course.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes for English (1) 15-week English class syllabus: 1. Students will comprehend and discuss texts on different topics 2. Students will expand their vocabulary related to various topics 3. Students will acquire vocabulary related to Various topics 4. Students will be able to write letters , and reviews.

	5. Students will be able to use possessive forms correctly in sentences, indicating ownership. 6. Students will master question words, pronouns, and prepositions. 7. Students will distinguish between present simple and past simple tenses. 8. Students will learn about the present continuous, present simple vs. continuous, and have & have got. 9. Students will study the past continuous and quantity and articles. 10. Students will understand comparative and superlative adjectives. 11. Students will focus on verb patterns, future intentions, and present perfect and past simple tenses. 12. Students will study modal verbs (have/got to, should, must). 13. Students will learn about time and conditional clauses. 14. Students will cover present perfect continuous, present perfect simple vs. continuous, past perfect for clarification, and reported statements
Indicative Contents المحتويات الارشادية	Beginners book : **Grammar :** Possessive (CH1,2,4) **Vocabulary –** numbers –(CH1, 2, 5) -- the family (Ch4) **Every day English-**all (Ch1,3) **Reading-** where are they (Ch2) , The Chairty Walk, (Ch3) , My best Friend,(Ch4)…… (2 hours) **Grammar :** Question words (CH 7) – Pronouns (Ch7) – Prepositions (Ch8) **Vocabulary –** Rooms and Furniture –(CH8) – in and out of Town (Ch4), Saying Years (ch9) **Every day English-**all (Ch 9) **Reading-** A Postcard from San Fransisco (Ch7) , Vancouver , the best city in the world, (Ch8) , It is a Jacksin Pollock ,(Ch9) ……(2 hours) **Grammar :** Present Simple (Ch5,6)- Past Simple (Ch9,10) **Vocabulary – shopping, food, in a restaurant** (ch12) **Every day English-**all (Ch 14) **Reading-** The internet (Ch11) , You are what you eat (Ch12) , This week is different (Ch13) , Life's big events (Ch14)…… (2 hours) Pre-intermediate book: **Grammar :** - **Vocabulary –** Parts of speech (ch1,3, 7) **Every day English-**Social expressions (Ch 1) **Reading-** People the great communicators (Ch1) **Writing-** A letter to a pen friend (informal) (Ch1) …… (2 hours) **Grammar :** - Present continuous – Present simple vs. continuous- have &have got (ch2) **Vocabulary –** **Every day English-**Making conversation (Ch 2) **Reading-** Living in the USA (Ch2) **Writing-** Linking words (Ch2,3) …… (2 hours) **Grammar :** - Past continuous (ch3) – Quantity and Articles (Ch4) **Vocabulary –** **Every day English-** **Reading-** The burglar's friend – The thief, his mother and 2 billion – Sherlock Holmes the three students (Ch3) **Writing……** (2 hours) **Grammar :** - comparative and superlative adj (ch6) **Vocabulary –** synonyms and antonyms (ch6) **Every day English-** **Reading-** Markets around the world(Ch4) **Writing……** (2 hours) **Grammar :**

	Vocabulary: **Every day English:** **Reading-** Hollywood Kids (Ch5) – A tale of two millionaires (ch6) **Writing……** (2 hours) **Grammar :** Verb Patterns (Ch5) – Future intentions (Ch5)- Present Perfect and Past simple (ch7) **Vocabulary:** **Every day English:** **Reading:** **Writing:** Relative clauses (ch6,7)… ……(2 hours) **Grammar :** have (got)to, should, must (ch8) **Vocabulary: -** **Every day English:** Short Answers (ch7) – At the doctor's (ch8) **Reading-** Celebrity interview from Hi (Ch7) **Writing……** (2 hours) **Grammar :** Time and conditional clauses (ch9) **Vocabulary: -** **Every day English:** In a hotel (ch9) **Reading-** Problem page (Ch8) **Writing-** Formal letter (ch8) …… (2 hours) **Grammar :** **Vocabulary: -** **Every day English:** Exclamation (ch11) – saying goodbye (ch14) **Reading-** The world's first megalopolis (Ch9) **Writing-** writing a review of a book or a film (ch11) ……(2 hours) **Grammar :** **Vocabulary:** Phrasal verbs (ch12)- word formation (ch3) **Every day English:** Social expressions (ch12) **Reading-** Super volcano (Ch12) **Writing-** writing a story (ch14) …… (2 hours) **Grammar :** present perfect continuous (ch13) - Present perfect simple vs continuous (ch13)- Past perfect for clarification (ch14) – Reported statement (ch14) **Vocabulary:** **Every day English:** **Reading-** A funny way to earn a living (Ch13) **Writing……** (2 hours)
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for the English Language (Beginner) module may include: 1. Interactive Language Practice: Engage learners in communicative activities that promote active participation and language practice. This can include pair work, group discussions, role-plays, and language games. 2. Authentic Materials: Incorporate authentic materials such as videos, audio recordings, and reading texts that reflect real-life language use. This helps learners develop their listening, speaking, reading, and writing skills in authentic contexts. 3. Task-Based Learning: Design tasks and projects that require learners to use the target language to accomplish specific goals or solve problems. This promotes meaningful language use and encourages critical thinking and problem-solving skills.

	4. Visual Aids and Multimedia: Utilize visual aids, charts, diagrams, and multimedia resources to support language learning and comprehension. Visuals can enhance understanding, aid in vocabulary acquisition, and provide context for language use. 5. Error Correction and Feedback: Provide timely and constructive feedback on learners' language production to help them identify and correct errors. Encourage self-correction and peer correction to foster a supportive learning environment.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ15 اسبوعا

Structured SWL (h/sem) الحمل الدراس المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراس غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراس 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)	3, 12	LO #1-6 and 1,2,4,10-12
	Assignments	2	10% (10)	4, 10	LO # 1-7 and 1-11
	Discussion	2	10% (10)	continuous	1-14
	Onsite assignment	5	10% (10)	continuous	1-14
Summative assessment	**Midterm Exam**	2 hours	10% (10)	7	LO # 1-9
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Grammar :** Possessive (CH1,2,4) **Vocabulary –** numbers –(CH1, 2, 5) -- the family (Ch4) **Every day English-**all (Ch1,3) **Reading-** where are they (Ch2) , The Chairty Walk, (Ch3) , My best Friend,(Ch4)
Week 2	**Grammar :** Question words (CH 7) – Pronouns (Ch7) – Prepositions (Ch8) **Vocabulary –** Rooms and Furniture –(CH8) – in and out of Town (Ch4), Saying Years (ch9) **Every day English-**all (Ch 9)

	Reading- A Postcard from San Fransisco (Ch7) , Vancouver , the best city in the world (Ch8) , It is a Jacksin Pollock (Ch9)
Week 3	**Grammar :** Present Simple (Ch5,6)- Past Simple (Ch9,10) **Vocabulary – shopping, food, in a restaurant** (ch12) **Every day English-**all (Ch 14) **Reading-** The internet (Ch11) , You are what you eat (Ch12) , This week is different (Ch13) , Life's big events (Ch14)
Week 4	**Vocabulary –** Parts of speech (ch1,3, 7) **Every day English-**all (Ch 1) **Reading-** People the great communicators (Ch1) **Writing-** A letter to a pen friend (informal) (Ch1)
Week 5	**Grammar :** - Present continuous – Present simple vs. continuous- have &have got (ch2) **Every day English-**Making conversation (Ch 2) **Reading-** Living in the USA (Ch2) **Writing-** Linking words (Ch2,3)
Week 6	**Grammar :** - Past continuous (ch3) – Quantity and Articles (Ch4) **Reading-** The burglar's friend – The thief, his mother and 2 billion – Sherlock Holmes the three students (Ch3)
Week 7	**Midterm**
Week 8	**Grammar:** - comparative and superlative adj (ch6) **Vocabulary –** synonyms and antonyms (ch6) **Reading-** Markets around the world(Ch4)
Week 9	**Reading-** Hollywood Kids (Ch5) – A tale of two millionaires (ch6)
Week 10	**Grammar :** Verb Patterns (Ch5) – Future intentions (Ch5)- Present Perfect and Past simple (ch7) **Writing:** Relative clauses (ch6,7)
Week 11	**Grammar :** have (got)to, should, must (ch8) **Every day English:** Short Answers (ch7) – At the doctor's (ch8) **Reading-** Celebrity interview from Hi (Ch7)
Week 12	**Grammar :** Time and conditional clauses (ch9) **Every day English:** In a hotel (ch9) **Reading-** Problem page (Ch8) **Writing-** Formal letter (ch8)
Week 13	**Every day English:** Exclamation (ch11) – saying goodbye (ch14) **Reading-** The world's first megalopolis (Ch9) **Writing-** writing a review of a book or a film (ch11)
Week 14	**Vocabulary:** Phrasal verbs (ch12)- word formation (ch3) **Every day English:** Social expressions (ch12) **Reading-** Super volcano (Ch12) **Writing-** writing a story (ch14)
Week 15	**Grammar :** present perfect continuous (ch13) - Present perfect simple vs continuous (ch13)- Past perfect for clarification (ch14) – Reported statement (ch14) **Reading-** A funny way to earn a living (Ch13)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Soars, J., Soars, L. (2014). New Headway Plus: Beginner Student's Book. United Kingdom: Oxford University Press.	Yes

	• Soars, J., Soars, L. (2006). New Headway Plus: Pre-intermediate. United Kingdom: Oxford University Press.	
Recommended Texts	Audio CDs or Online Audio: Recordings of listening exercises, dialogues, and pronunciation practice. Beginner workbook Pre-intermediate Workbook	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	**Computer Principles**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TCE132**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Batool Rafid Natiq		**e-mail**	batool.r.natiq@gu.edu.iq	
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		M.Sc.
Module Tutor			**e-mail**		
Peer Reviewer Name		Ameer H. Morad	**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Objectives أهداف المادة الدراسية	1. To understand operating system, be familiar with its types. 2. To be familiar with the desktop. 3. To be familiar and manage files and folders. 4. To be familiar with the basic concepts of hardware components of the computer. 5. To be able to use the basic functions in control panel. 6. To recognize software types. 7. To be able to understand the basic similarities and differences among (MS Office) applications. 8. To be able to use MS Word program. 9. To be able to use MS Excel program. 10. To be able to use MS PowerPoint program. 11. To be able to use MS Outlook. 12. To be familiar with search engines and the World Wide Web. 13. To be able to use Google apps. 14. To be introduced to AI tools.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate understanding of operating systems, including their types. 2. Navigate and utilize the desktop effectively. 3. Manage files and folders proficiently. 4. Identify hardware components of a computer system. 5. Utilize the control panel efficiently. 6. Differentiate software types and their applications. 7. Effectively utilize essential applications such as MS Office. 8. Demonstrate proficiency in using the MS Word program. 9. Demonstrate proficiency in using the MS Excel program. 10. Demonstrate proficiency in using the MS PowerPoint program. 11. Utilize MS Outlook for email and scheduling purposes. 12. Navigate search engines and utilize the World Wide Web effectively. 13. Utilize Google apps for various tasks. 14. Basic Use of AI tools.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. Introduction to Operating Systems: Definition, functions, and capabilities of an operating system. Types of operating systems (e.g., Windows, macOS, Linux) with examples. Differences between operating systems and software applications. Power options: computer power on/off and power settings. (3 hrs) Exploring the Desktop: Navigating the desktop environment. Using the start button and working with applications. Understanding the relationship between software and hardware, their differences, importance, and influence on each other. Introduction to software updates. Exploring the taskbar. (6 hrs) Files and Folders: Understanding the typical window and file management. Introduction to the Recycle Bin. Understanding file names and common extensions.

	(6 hrs) Computer Hardware: Identifying various computer types . Exploring components inside a computer, such as the microprocessor, system memory, and storage systems. Recognizing input/output devices and their interaction. (6 hrs) Familiarity with the control panel and its categories and usage. (6 hrs) Software Overview: Understanding software requirements and their implications for hardware. Introduction to different types of application software + Dealing with viruses and malwares (2 hrs) Main Screen Features: Common features found in word processing, spreadsheet, and presentation software. Understanding the ribbon, tabs, and status bar, and their specific functions in each application. (3 hrs) MS Office Basics: Definitions and key concepts in MS Office applications and Usage. (9 hrs) Google apps and Gmail (3hrs) Digital Citizenship: Identifying ethical issues in the digital realm, including intellectual property, copyright, and licensing. Protecting data and computers from software threats and understanding viruses. Ensuring online privacy and security. And basic understanding and usage for AI tools (3 hrs)

Learning and Teaching Strategies اسراتيجيات التعلم والتعليم	
Strategies	Incorporate a mix of theoretical study, hands-on practice, experimentation, and real-world applications to reinforce understanding and proficiency in each of the desired learning outcomes. Seek feedback, engage in discussions, and actively participate in exercises to enhance learning and address any gaps in knowledge.

Student Workload (SWL) الحمل الدرا سي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to operating system and its types, the differences between operating systems and software applications; Common operating system features.
Week 2	Looking and navigation of the desktop; start button components ; Understanding Taskbar ,Software and hardware relationship.
Week 3	Software updates+, Files and folders looking at typical window.+ Understanding files and folders+ Libraries
Week 4	understanding Recycle bin; understanding file name and common extensions. View options + Computer hardware identifying computers
Week 5	Looking inside a computer (microprocessor, system memory, storage systems)+ recognizing input/ output devices + understanding how it works together.
Week 6	Understanding control panel categories + Understanding Ease of access + Understanding User account rights
Week 7	What is software , application software + Avoiding and dealing Viruses and malwares
Week 8	**Mid Term**
Week 9	MS office common features and differences

Week 10	Basic concepts and Usage of MS Word + Basic concepts and Usage of MS Power Point
Week 11	Basic concepts and Usage of MS Excell + Basic concepts and Usage of MS Outlook
Week 12	Introduction to Google apps
Week 13	Digital citizenship identifying ethical issues; protecting your data or computer
Week 14	Basic understanding and usage for AI tools
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Getting to know computer hardware + turn on and shut down options +looking at the desktop + using mouse (Menu, pointing, selecting, dragging, scrolling and execution)+ using start button
Week 2	Lab 2: Create a folder (and file) , Rename, Copy, Cut, find, shortcut +Recycle bin ; using task bar
Week 3	Lab 3: looking at a typical window +control buttons + move, resize a window+ view options+ select files + file options +using taskbar.
Week 4	Lab 4: Install, open, close, and(control panel- Programs) uninstall applications(internet and other sources); Control Panel (power options), Control Panel (add a device or printer), Control Panel (Project)
Week 5	Lab 5: Personalization (background and color) +(User Account (create a standard account, change password , picture and name) Control Panel- Clock and region (change date, time , and region) + Ease of Access (Narrator, Magnifier, on screen keyboard)).
Week 6	Lab 6: MS Office (word, Excel, Power point, outlook) Starting each program and identify the main screen in details as title bar, main ribbons, etc.
Week 7	Lab 7: MS Word (Home Tab, Insert Tab, Layout Tab, View Tab + Watermark, Page boarder and Page color).
Week 8	Lab 8:**Mid Term**
Week 9	Lab 9: MS Excel (Home Tab, Insert, Page layout, Formula, Data).
Week 10	Lab 10: MS Power Point (Home Tab, Insert, Design, Transition, Animation).

Week 11	Lab 11: MS outlook (Home Tab, send and receive) + Calendar
Week 12	Lab 12: **Google apps Vs MS office.**
Week 13	Lab 13: Creating Gmail+ basic e-mail functions+ using google class.Using internet (Google scholar + fining courses and materials, Khan academy and finding resources).
Week 14	Lab 14: Using AI tools

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Internet and Computing Core Certification	No
Recommended Texts		
Websites	https://alison.com/tag/microsoft Share and Discover Knowledge on SlideShare https://support.microsoft.com/en-us/training https://support.google.com/a/users https://edu.gcfglobal.org/en/topics/googleapps/# https://edu.gcfglobal.org/en/subjects/office/# https://chat.openai.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	**Human Rights and Democracy**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TCE131**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGI		**Semester of Delivery**	1	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	humam ali sabeeh		**e-mail**	humam.a.sabeeh@gu.edu.iq	
Module Leader's Acad. Title	Assist.Lecturer		**Module Leader's Qualification**	M.sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Farah Salah fakhry		**e-mail**	farah.s.fakhry@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	١. لتطور التاريخي لحقوق الانسان: دراسة التطور التاريخي لفهم حقوق الانسان من الحضارات القديمة إلى العصور الحديثة. ٢. قوق الانسان في الشرائع السماوية: التركيز على حقوق الانسان في الاسلام وكيف تم تضمينها في الشريعة الاسلامية. ٣.اعتراف إقليمي بحقوق الانسان: فحص اعتراف الاقاليم الاوروبي، الامريكي، الافريقي، الاسلامي، والعربي بحقوق الانسان. ٤.دور المنظمات غير الحكومية: دراسة دور المنظمات مثل اللجنة الدولية للصليب الاحمر ومنظمة العفو الدولية في حماية حقوق الانسان. ٥.الاطار القانوني الدولي والاقليمي: التركيز على المواثيق الدولية والاقليمية، مثل الاعلان العالمي لحقوق الانسان. ٦.تحليل حقوق الانسان في التشريعات الوطنية: دراسة كيفية ترجمة حقوق الانسان في التشريعات الوطنية، مع التركيز على الدستور العراقي. ٧.تصنيف حقوق الانسان وضماناتها: فهم مختلف أشكال حقوق الانسان والضمانات الدستورية والقضائية والسياسية لحمايتها.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١. القدرة على وصف وتحليل التطور التاريخي لحقوق الانسان منذ الحضارات القديمة حتى العصور الحديثة. ٢. القدرة على فحص حقوق الانسان في حضارة وادي الرافدين وغيرها لفهم التأثير الثقافي على تطورها. ٣. تفسير حقوق الانسان في الاسلام وفهم كيف تم تضمينها في الشريعة الاسلامية. ٤. القدرة على تحليل تطور حقوق الانسان خالل العصور الوسطى والحديثة. ٥. الفهم الشامل العتراف الاقاليم الاوروبي، الامركي، الافريقي، الاسلامي، والعرب بحقوق الانسان. ٦. القدرة على تقييم دور منظمات مثل اللجنة الدولية للصليب ألحمر ومنظمة العفو الدولية في حماية حقوق الانسان. ٧. القدرة على دراسة وتحليل المواثيق الدولية والاقليمية، بما في ذلك الاعلان العالمي لحقوق الانسان. ٨. القدرة على فحص كيف تم ترجمة حقوق الانسان في التشريعات الوطنية، مع التركيز على مثال الدستور العراقي. ٩. القدرة على تصنيف حقوق الانسان إلى أشكال فردية وجماعية، وأجيال مثل الحقوق المدنية والسياسية والاقتصادية والاجتماعية. ١٠. القدرة على تحليل الضمانات الدستورية والقضائية والسياسية لحقوق الانسان على الصعيدين الوطني والدولي والاقليمي.
Indicative Contents المحتويات الارشادية	فهم التاريخ التطوري لحقوق الانسان(3 س) تحليل حقوق الانسان في الحضارات القديمة (3 س) فهم حقوق الانسان في الشرائع السماوية (3 س) تحليل حقوق الانسان في العصور الوسطى والحديثة (3 س) فهم االعتراف الاقليمي بحقوق الانسان(3 س) تقدير دور المنظمات غير الحكومية (3 س) فهم الاطار القانوني لحقوق الانسان(3 س) تحليل حقوق الانسان في التشريعات الوطنية (3 س) فهم أشكال وأجيال حقوق (3 س) تحليل ضمانات حقوق الانسان(3 س)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تشجيع الطالب على المشاركة في مناقشات تفاعلية حول تطور حقوق الانسان عبر التاريخ مشروعات بحثية: توجيه الطالب في إعداد مشروعات بحثية تستكشف تطور حقوق الانسان في فترات تاريخية محددة. استخدام التكنولوجيا: تضمين وسائل تكنولوجية لتعزيز تفاعل الطالب وتقديم المعلومات بشكل أكثر تفاعلية. ورش العمل والتمثيل العملي: إجراء ورش عمل تفاعلية وأنشطة تمثيل لفهم أعمق لمفاهيم حقوق الانسان. تقديم تقييم مستمر: تقديم تقييم مستمر لفحص تقدم الطالب وفهمهم لتطور حقوق الانسان على مر العصور

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
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, 9	LO #1, 2, 3, LO # 6, 7
	Assignments	2	10% (10)	6, 13	LO # 4 and LO#9
	Seminar	1	10% (10)	12	LO# 5, 6, 7, 8
	Report	1	10% (10)	14	LO# 8, 9, 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	
الاسبوع الاول	لتطور التاريخي لحقوق الانسان حقوق الانسان في الحضارات القديمة (حضارة وادي الرافدين، والحضارات القديمة الاخرى)
الاسبوع الثاني	حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام حقوق الانسان في العصور الوسطى والحديثة
الاسبوع الثالث	الاعتراف الاقليمي بحقوق الانسان على الصعيد الاوربي الامريكي، الافريقي، الاسلامي، العربي
الاسبوع الرابع	المنظمات غير الحكومية ودورها في حقوق الانسان اللجنة الدولية للصليب الاحمر، منظمة العفو الدولية، منظمة مراقبة حقوق الانسان المنظمة العربية لحقوق الانسان
الاسبوع الخامس	حقوق الانسان في المواثيق الدولية والاقليمية والتشريعات الوطنية. حقوق الانسان في المواثيق الدولية الاعلان العالمي لحقوق الانسان العهدين الدوليين الخاصين بحقوق الانسان
الاسبوع السادس	حقوق الانسان في المواثيق الاقليمية الاتفاقية الاوربية لحقوق الانسان الاتفاقية الامريكية لحقوق الانسان الميثاق الافريقي لحقوق الانسان الميثاق العربي لحقوق الانسان
الاسبوع السابع	امتحان منتصف الفصل الدراسي
الاسبوع الثامن	حقوق الانسان في التشريعات الوطنية (الدستور العراقي)
الاسبوع التاسع	اشكال واجبال حقوق الانسان: اشكال حقوق الانسان الحقوق الفردية، الحقوق الجماعية اجيال حقوق الانسان الجيل الاول الحقوق المدنية والسياسية، الجيل الثاني الحقوق الاقتصادية والاجتماعية, الجيل الثالث: حقوق الانسان الحديثة ، الوعي الماني والبيتي
الاسبوع العاشر	ضمانات حقوق الانسان وحمايتها على الصعيد الوطني الضمانات الدستورية والقضائية والسياسية
الاسبوع الحادي عشر	ضمانات حقوق الانسان وحمايتها على الصعيدين الاقليمي والدولي دور الامم المتحدة، دور المنظمات الاقليمية جريمة الابادة الجماعية
الاسبوع الثاني عشر	تصنيف الحريات العامة الحريات الاساسية والفردية حرية الامن والشعور بالاطمئنان حرية الذهاب والاياب، الحرية الشخصية
الاسبوع الثالث عشر	الحريات الفكرية والثقافية حرية الرأي حرية المعتقد حرية التعليم حرية الصحافة حرية التجمع حرية تشكيل الجمعيات
الاسبوع الرابع عشر	لحريات الاقتصادية والاجتماعية حرية العمل، حرية التملك حرية التجارة والصناعة
الاسبوع الخامس عشر	الاستعداد لامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	١."حقوق الانسان في العلم العربي: القضايا والتحديات" تايف علي حجازي وجمال شعت. الحديثة. الطبعة: الطبعة الثانية، العام 2017 ٢.مبادئ حقوق الانسان: المفاهيم الحديثة "، تأليف: أحمد المجالي وغسان حمدان. الطبعة: الطبعة الاول، العام: 2019	Yes
Recommended Texts	١. "حقوق الانسان والديمقراطية"، تأليف: مصطفى كامل محمود. الطبعة: الطبعة الاول، العام: 2015 ٢. "ناريخ حقوق الانسان في العصور القديمة والوسطى"، تأليف: نبيل رزق ، الطبعة: الطبعة الثالثة، العام: 2012 ٣. " حقوق الانسان في العراق: الواقع والتحديات"، تأليف: سعدالله عباس، الطبعة: الطبعة ألاول، العام: 2014 ٤. " حقوق إلنسان في العراق: المفهوم والتطور"، تأليف: عبد الكريم.السامرائي الطبعة: الطبعة الاول، العام: 2018 ٥."حقوق الانسان في العراق بين التحديات والافاق"، تأليف: محمد السامرائي: الطبعة: الطبعة الاول، العام2020 .	No
Websites	The Collage E-Library	

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	**Engineering Workshops**		**Module Delivery**	
Module Type	**Support**		☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT12305**			
ECTS Credits	**5**			
SWL (hr/sem)	**125**			
Module Level	UGI	**Semester of Delivery**	2	
Administering Department	MIT	**College**	College of Engineering Techniques	
Module Leader	**Samer Razzaq Hilal**	**e-mail**	Samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Assist. lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor	**Samer Razzaq Hilal**	**e-mail**	Samer.r.hilal@gu.edu.iq	
Peer Reviewer Name	Prof. Dr. Ameer H. Morad	**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To explain the lathe workshop: various measuring devices and how to use them. How to operate the lathe and use different tools and cutting tools. 2. To explain the welding and gas welding processes and familiarize yourself with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a simple exercise. 3. To understand the electrical transformers and their types: magnetic circuits; electrical circuits; measuring the wire diameters of the transformer. 4. To understand the drawing of a circuit for establishing (the lamp ladder) two roads using a two-way switch—a practical application of the circuit. 5. To learn how to use the different measuring devices in the workshop (such as a multimeter, oscilloscope, etc.). 6. To learn how to use caustics, soldering irons, and various printed electronic circuits, identify how to install them, and install various electronic components on them. 7. To understand different types of coils and methods of checking them. Different types of capacitors differ in terms of the type of insulator used between the capacitor plates and the methods of checking them. The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors: how to check them. 8. To understand the different types of switches used in electronic devices and their examination methods. Different types of fuses There are different types of resistors in terms of the material they are made of. Types of semiconductor diodes and transistors and finding the equivalents Semiconductor check, diode check, and transistor check. 9. To understand how to read the electronic map and how to track faults on the electronic map How to install and solder electronic components on the printed board Implementation of a simple electronic circuit on the printed board integrated electronic circuits: identify the types of these circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Recognize the methods of work on the lathe. 2. Cuts metals with a cutting and punching machine. 3. Install some simple structures. 4. Providing the student with manual experience and scientific proficiency in it. 5. Learn about electronic components. 6. Electronic components exchange is used to build and solder simple circuits. 7. Examine electronic circuits and their components.

	8. Read the electronic map and learn how to track faults on the electronic map. 9. How to install and solder electronic components on the printed board. 10. Implementation of a simple electronic circuit on the printed board. 11. Removing solder from circuits for the purpose of lifting and replacing. 12. How to design electronic circuits on the printed board. 13. Methods of soldering integrated circuits.
Indicative Contents المحتويات الارشادية	Indicative content includes the following: Lathe workshop, measuring devices, different tools, cutting tools, welding, gas welding, and point welding. [7 hrs.]. Electrical transformers, magnetic circuit, and electrical circuits. [6 hrs.]. Different measuring devices in the workshop (such as an ovometer, oscilloscope, power supply, etc.) [8 hrs.]. Soldering iron and printed electronic circuits [4 hrs.]. Coils, capacitors, and resistors [6 hrs.]. Switches and fuses [4 hrs.]. Semiconductor diode, and transistor [6 hrs.]. Electronic map, faults on the electronic map, and design electronic circuits on the printed board [8 hrs.]. Implemented a simple electronic circuit on the printed board [4 hrs.]. Integrated electronic circuits [4 hrs.].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests.

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
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**	2	10% (10)	3, 8	LO # 1-2 and 4-6
	Assignments	2	10% (10)	9, 13	LO # 3 and #4
	Projects / Lab.	8	15% (10)	Continuous	
	Reports	1	5% (10)	6	LO # 7
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	8	LO # 1-7
	Final Exam	3 hr.	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Lathe workshop: various measuring devices and how to use them. How to operate the lathe and use different tools and cutting tools
Week 2	Lab 2: Welding and gas welding, and familiarization with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a simple exercise.
Week 3	Lab 3: Electrical transformers: their types magnetic circuits; electrical circuits; opening transformers; taking information from the old transformer for primary and secondary coils measuring the wire diameters of the transformer; measuring the plastic coil template rewinding primary and secondary coils.
Week 4	Lab 4: Drawing a circuit for establishing two roads using a two-way switch is a practical application of the circuit. Identifying electrical collectors-their types, their use, thermal follow-ups, and time position.
Week 5	Lab 5: Training on making electrical installations (establishing inside tubes).Pipe cutting process: dental work, pipe bending, using drag springs.
Week 6	Lab 6: How to use the different measuring devices in the workshop (such as a multimeter, oscilloscope, etc.).
Week 7	Lab 7: How to use caustics: types of caustics used in the workshop; caustic welding training. Types of solder used: auxiliary materials for soldering; soldering some wires with each other

	and with some components. How to use a soldering iron and a soldering absorbent kit such as a solder sucker or solder remover, training on some electronic components, and lifting them from the printed plate. Various printed electronic circuits, identifying how to install them, and the installation of various electronic components on them. Lab 8- Coil types, methods of checking them, electrical transformers, types, checking, auto-transformer, the difference between an auto-transformer and an ordinary transformer. The different types of capacitors in terms of the type of insulator used between the capacitor plates, the effort that the capacitor bears, and reading the values of the capacitors using the different methods used in coding How to check the amplifiers and how to switch them. Making connections of the capacitors in parallel, series, and mixed on the printed board with the examination.
Week 8	Midterm- Exam
Week 9	Lab 9: The different types of switches used in electronic devices and their examination methods, the current that each switch bears, and the use of each type.Types of fuses used in electronic circuits, types and diameters of wires used and diameters of wires used in fuses, the current that each type bears, and how to repair fuses
Week 10	Lab 10: The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors (VDR-PYC-NTC) how to check them. Make a circuit to connect the resistors in series, make a circuit to connect the resistors in parallel, make a circuit to connect the resistors in series and parallel, and check the circuit.
Week 11	Lab 11: Types of semiconductor diodes and transistors and finding the equivalents. Semiconductor check, diode check, transistor check
Week 12	Lab 12: How to read the electronic map and track faults on the electronic map. Introduce the student to how to design electronic circuits on the printed board.
Week 13	Lab 13: How to install and solder electronic components on the printed board. Implementation of a simple electronic circuit on the printed board.
Week 14	Lab 14: Integrated electronic circuits: identify the types of these circuits. Cautery for soldering integrated circuits, the correct method of soldering integrated circuits, and removing solder from circuits for the purpose of lifting and replacing.
Week 15	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Recommended Texts	1- Encyclopedia of Electronic Components Volume 1 (Charles Platt). 2- Encyclopedia of Electronic Components Volume 2 (Charles Platt). 3- Encyclopedia of Electronic Components Volume 3 (Charles Platt). 4- Encyclopedia of Electronic Components Volume 4 (Charles Platt). 5- Encyclopedia of Electronic Components Volume 5 (Charles Platt).	NO
Websites	https://www.electricaltechnology.org/2013/03/how-to-remember-direction-of-pnp-and.html	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mechanics**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT 12303**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		**Semester of Delivery**		2
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	**Samer Razzaq Hilal**		**e-mail**	Samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Assist.lecturer		**Module Leader's Qualification**		M.Sc.
Module Tutor			**e-mail**		
Peer Reviewer Name	Dr. Lina Nasseer Kassim		E-mail	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To understand mechanics theory through the application of motion. 2. To determine the forces, stress and strain under force effected. 3. To determine the reaction forces under load applied. 4. To understand the friction basic under mechanic applied 5. To understand the newton laws in motion. 6. To understand and solve problems in forces analysis. 7. To determine the materials properties and selective of materials.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identifying the basic of forces results in applications of structures. 2. Identify the basics of Equilibrium force system. 3. Recognize how phenomena motion in mechanic's subject. 4. Summarize what is mean of forces reaction in beams. 5. Explain the analysis force in mechanics application. 6. Identify the basics of stress and strain in mechanical applications. 7. List the various parameters associated with mechanics theory. 8. Identify the basics of forces analysis and their applications. 9. Explain the Newton's laws used in mechanics application. 10. Identify the basics of friction forces in motion. 11. Identify the basics of welding and riveted joints in mechanical applications. 12. Explain the mechanical test to determine the mechanical properties. 13. Discuss the phenomena of moment of forces under different force moment.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. <u>Part A :</u> 1- Introduction of forces, Analysis of Forces, Result of forces, Moment of forces, Equilibrium force system. [5 hrs] 2- Stress, Strain, stress – strain curve, Simple strain, Variable stress. [6 hrs] 3- Beams and bending, Analysis of structure. [5 hrs] 4- Friction, coefficient of friction, mechanism of friction. [5 hrs] <u>Part B:</u>

	1- Materials properties, material selective, stress- strain diagram. [5 hrs] 2- Mechanical tensile test, compression test, impact test, hardness test. [5 hrs] 3- Mechanical joint, Rivet joint, welding connection. [5 hrs] 4- Beams and bending, Analysis of structure, Centroid, Second moment of area. [7 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Strategies in mechanical subject like: The main strategy that will be adopted in delivering this module is to encourage students to participate in the exercises, while at the same time refining and expanding their mechanical subject thinking development 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 SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**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)	3, 12	LO #1, 2, 10 and 11
	Online Assignments	2	10% (10)	5,9	LO # 3, 4, 6 and 7
	OnSite assignment	2	10% (10)	6, 10	LO # 5, 6, 8 and 9
	Report	1	10% (10)	14	LO # 2-10
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:	• Introduction to Engineering Mechanics • Basic Concepts and Definitions
Week 2:	**Introduction to Statics and Vectors (Part 1)** • Course introduction, syllabus, and importance of Statics. • Fundamentals of forces, types of forces. • Scalars and vectors. • Vector addition and subtraction. • Vector components and unit vectors.
Week 3:	
Week 4:	**Introduction to Statics and Vectors (Part 2)** • Resultant of force systems (graphical method). • Resultant of force systems (analytical method). • Moments of forces (torque). • Conditions for equilibrium. • Free-body diagrams and solving equilibrium problems.
Week 5:	
Week 6:	**Stress, Strain, and Material Properties (Part 1)** • Stress and types of stress. • Strain and types of strain. • Hooke's Law and material properties. • Stress-strain diagrams. • Thermal stress and strain.
Week 7:	
Week 8:	**Mid-term Exam**
Week 9:	**Stress, Strain, and Material Properties (Part 2)** • Simple strain and deformation. • Stress and strain transformations. • Shear and axial deformation. • Review and applications of stress and strain. • Assignment on stress and strain analysis.
Week 10:	

Week 11:	**Second Moment of Area and Structural Analysis (Part 1)** • Geometric properties of shapes. • Centroids and center of mass. • Second moment of area (moment of inertia). • Bending stress in beams. • Shear stress in beams.
Week 12:	
Week 13:	**Second Moment of Area and Structural Analysis (Part 2)** • Shear and moment diagrams. • Introduction to beams and types of loads. • Determining reactions in statically determinate structures. • Truss analysis. • Frame analysis.
Week 14:	**Friction** • Friction coefficient • Type of friction • Mechanism of friction. **Stress Concentration, Fatigue, and Special Topics** • Review of special topics. • Comprehensive review of the course material. • Final exam or project presentations. Course evaluation and feedback.
Week 15:	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Engineering Mechanic's Statics, 12th Edition by R. C. Nibbler, 1995.	Yes
Recommended Texts	2- Engineering Mechanic's Statics, 7th Edition by James, L. Meriam, L. G Kraige, 1995.	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	**Fundamentals of Electrical Engineering (AC)**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT12301**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Asaad Mubdir Jassim		**e-mail**	asaad.m.jassim@gu.edu.iq	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		M.Sc
Module Tutor			e-mail		
Peer Reviewer Name		Dr. Ameer H. Morad	**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Fundamentals of Electrical Engineering (DC)	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand capacitance, inductance and resistance from an AC circuit. 3. To learn the basic concept of First-Order electrical circuits. 4. To explain the parallel and series circuits. 5. To understand Sinusoids and Phasors problems. 6. To perform AC- network theorem. 7. To perform AC Power Analysis. 8. To understand 3-phase system.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	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. Describe electrical capacitance, inductance and resistance. 5. Define First-Order electrical circuits' voltage, resistance, and current. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of sinusoids and phasors in an electric circuit. 8. Discuss the various properties of resistors, capacitors, and inductors. 9. Explain the parallel and series circuits. 10. Identify the capacitor and inductor phasor relationship with respect to voltage and current. 11. Learn the 3-Phase system, Wye connection and Delta connection. 12. Identify the power in balance phase circuit. 13. Describe the Magnetism and Magnetic Circuits
Indicative Contents المحتويات الارشادية	Indicative content includes the following. AC circuits I – Generation of alternating current, Sinusoidal current. The mean values of current and voltage. [15 hrs] AC Circuits II - The effective values of current and voltage. The vector diagram, [10 hrs] The instantaneous power and mean power of A.C , relative and apparent power . . [10 hrs] Revision problem classes [8 hrs] 3-Phase system, Wye connection, and Delta connection [10 hrs] The power in balance phase circuit. [7 hrs] Revision problem classes [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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	5
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	8% (10)	5, 10	LO #1-4, 6- 9
	Project	1	10% (10)	12	LO # 1-11
	OnSite assignment	2	6% (6)	4, 11	LO # 4, 11
	Report and presentation	1	6% (6)	13	LO # 6, 8, 10
	Lab	5	10% (10)	3, 6, 9, 12, 15	LO # 1-2, 4-5, 7-8, 10-11, 13-14

Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Generation of alternating current, Sinusoidal current
Week 2	Average and RMS values of current & voltage
Week 3	AC in resistive circuits Current & voltage in an inductive circuit
Weeks 4-6	Current and voltage in an capacitive circuits AC series and parallel circuit RL, RC and RLC circuit analysis & phasor representation
Week 7	Mid-term exam
Weeks 8-11	Power in resistive circuits Power in inductive and capacitive circuits Power in circuit with resistance and reactance Measurement of power in a single-phase AC circuit
Week 12-15	Basic concept & advantage of Three-phase circuit Phasor representation of star & delta connection Measurements of power & power factor in 3-phase system Preparation for final exam
Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to electrical elements, sources, and measuring devices related to electrical circuits.
Week 2 + week3	Generating AC Voltages and Measurement Frequency, Period, Amplitude, and Peak Value.
Week 4	Calculations and Verification of the Impedance of RL series circuits
Weeks 5	Calculations and Verification of the current of RL series circuits
Week 6	Calculations and Verification of Impedance RC series circuits + Calculations and Verification of Current RC series circuits
Weeks 7	Mid-term exam
Week 8	Calculations and verification of the impedance of RLC series circuits
Week 9	Calculations and verification of the current of RLC series circuits

Week 10	Calculations of Power in AC Circuits
Week 11	Calculations and verification of the impedance of RL and RC parallel circuits
Week 12	Calculations and verification of the current of RL and RC parallel circuits
Week 13	Calculations and verification of the impedance RLC parallel circuits
Week 14	Calculations and verification of the impedance current RLC parallel circuits
Week 15	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	Electric Circuits Seventh Editionو Schaum's Outline Series	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	**Medical physics**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT12302**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UG1		**Semester of Delivery**	2	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Hedar Hazar Terke		**e-mail**	hedar.h.terke@gu.edu.iq	
Module Leader's Acad. Title	Assist. Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	none	**Semester**	
Co-requisites module	none	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1- to recognize the influence of forces on the human body Identify how the skeleton works 2- to show how pressure affects the body's organs Recognize physical activity of the lungs and breathing 3- to demonstrate the physics of the cardiovascular system and the urinary system 4- to distinguishes the basic principles using the applications of electricity and magnetism in medicine 5- to shall be acquainted with respiratory, cardiovascular and cardiovascular equipment 6- to distinguishes the basic principles, using the sound waves in medicine and the use of x-rays in the diagnosis and identification of diseases
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1- Understand the difference between the Forces. 2- Know the bone has at least six functions. What are the main components of the bone, and to study the methods of Measurement the minerals quantity in the bone 3- know methods of diathermy 4- understand how Energy change in the body 5- know pressures inside the body parts and measure it 6- understand how to work the lungs and How the blood and lungs interact 7- know nervous system and the neuron 8- know the graphing devices of the body organs 9- know the applications of Electricity and Magnetism in Medicine 10- know the application of sound in medicine, know sonar devices 11- know the application of light and laser in medicine 12- know Major components of the cardiovascular system 13- know physics of nuclear medicine 14- know the x- ray device
Indicative Contents المحتويات الارشادية	1- Define the Forces , Frictional Forces , Dynamics (5hrs) 2- functions of the skeleton and Bone consists of quite different materials and how to measure mineral in the bones (5 hrs) 3- Types of thermometers , Heat therapy, Cryogenics (5 hrs) 4- Sphygmomanometer, blood pressure, bladder pressure , tonometer(4hrs) 5- Function of Lungs & Breathing, breath rate, airways, Dalton’s law of partial pressures(3hrs) 6- The nervous system and the neuron, Electrocardiogram, Electro retion gram (ERG), The magneto cardiogram (MCG)(4hrs)

	7- Magnetic signals from the heart –magneto cardiogram(3hrs) 8- Macro shock, Micro shock (3hrs) 9- General Properties of Sound, Acoustic Impedance, Absorption, A-mode Display, Doppler Ultrasound(5hrs) 10- Endoscope, cystoscopes, Emissive IR photography. (5hrs) 11- Laser, population inversion, X-ray (6hrs) 12- Physics of the cardiovascular system (5 hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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**	2	10% (10)	4, 11	LO # 1-3 and 8-10
	Assignments	2	10% (10)	9, 13	LO # 8 and 11-12
	Projects / Lab.	7	10% (10)	Continuous	
	Report	2	10% (10)	7, 12	LO # 1-6 and 7-11
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	7	LO # 1-7
	Final Exam	4 hr.	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Forces on and in the body.
Week 2	Physics of the skeleton.
Week 3	Heat & cold in medicine
Week 4	Energy, work and power of the body, Pressure in body organs
Week 5	Physics of the lungs and breathing.
Week 6	Physics of cardiovascular system
Week 7	**Mid Term Exam**
Week 8	Physics of urinary system.
Week 9	Electricity within the body.
Week 10	Sound in medicine and physics of hearing.
Week 11	Light in medicine and physics of vision.
Week 12	Diagnostic X-rays
Week 13	Physics of nuclear medicine (radioisotopes in medicine).
Week 14	Physics of radiation therapy+ Radiation protection
Week 15	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to laboratory tools
Week 2	Lab 2: the simple pendulum
Week 3	Lab 3: hook's law
Week 4	Lab 4: the blood pressure
Week 5	Lab 5: the friction
Week 6	Lab 6: the speed of sound
Week 7	Lab 7: the laser
Week 8	Lab 8: viscosity of liquids
Week 9	Lab 9: The cylindrical body
Week 10	Lab 10: The convex lens
Week 11	Lab 11: the concave lens

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Recommended Texts	Introductory Physics I Elementary Mechanics by Robert G. Brown	NO
Websites	https://webhome.phy.duke.edu/~rgb/Class/intro_physics_1/intro_physics_1.pdf	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Programming and Applications I**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT12306**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGII	**Semester of Delivery**		3
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Faten mohammed kareem		**e-mail**	Faten.m.kareem@gu.edu.iq	
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		M.Sc
Module Tutor			**e-mail**		
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. Understanding the fundamental concepts of MATLAB programming language environment. 2. The students will understand and learn how to use MATLAB as an effective programming language. 3. The students will be able to solve different mathematical and engineering problems as well as using plotting functions and design projects using codes or GUI. 4. Students will acquire the knowledge of basic MATLAB syntax such as: variables, input, output, vectors, matrices, functions, plotting, and GUI, 5. The students will gain the necessary skills to design and implements appropriate algorithms that solve problems dealing with different mathematical and engineering applications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the MATLAB environments and windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window). 2. The students learn how to write first program and learn Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns. 3. Explain how to use variables and assignment statement, logical operator. 4. Practice on using Arrays, Built in functions, Basic Matrix Functions(sum, max, min, mean, magic, diag, length, size, median, prod, sort). 5. Learn how to perform basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits). 6. Understand arguments and return values, M-file, input-output statement. 7. Train on using control Statements (Conditional statements: If, Else, Elseif, switch case) 8. Identify the repetition statements: (While statement, For statement). 9. Learn how to use combination of conditional and repetition statements. 10. Understand the procedures and functions (a custom-made MATLAB function, define the name of the function, the input and the output variables, Calling Functions). 11. Learn how to handle graphics and user interface. 1.pre-defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects. 12. Train of GUI Interface (Attaching buttons to actions, Getting Input, Setting Output).
Indicative Contents المحتويات الارشادية	1. Window, Workspace Window, Command History window, Help Window, Editor Window. (3 hr) 2. Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns. (5 hr) 3. variables and assignment statement, logical operator. (5 hr)

	4. sum, max, min, mean, magic, diag, length, size, median, prod, sort. (2 hr) 5. Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits. (2 hr) 6. M-file, input-output statement. (2 hr) 7. Conditional statements: If, Else, Elseif, switch case. (3 hr) 8. While statement, For statement. (4 hr) 9. conditional and repetition statements. (4 hr) 10. accustom-made MATLAB function. (4 hr) 11. GUI. (4 hr) 12. GUI attaching buttons to actions, Getting Input, Setting Output. (4 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 and by considering type of simple experiments involving some sampling activities that are interesting to the students. Moreover, motivate the creative side by posing various problems to students and urging them to find appropriate solutions. Also forming work teams to assess the results of their work and change their structure periodically to develop the spirit of cooperation and development and motivate students to make intensive efforts to work different roles.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	15% (20)	5, 10	LO #1, 2, 3, 4,7,8,9 and 10
	Assignments	2	15% (20)	6, 13	LO # 9 and 10
	Projects / Lab.	10	10% (10)		
	Report	N/A			
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO # 1-7
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, MATLAB Environment, MATLAB Windows(Command Window, Workspace Window, Command History window, Help Window, Editor Window).
Week 2	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.
Week 3	Variables and assignment statement, logical operator.
Week 4	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).
Week 5	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).
Week 6	Arguments and return values, M-file, input-output statement,+ + Control Statements (Conditional statements: If, Else, Elseif, switch case)
Week 7	Mid-Exam
Week 8	Repetition statements: (While statement, For statement)
Week 9	Combination of conditional and repetition statements I
Week 10	Combination of conditional and repetition statements II
Week 11	Procedures and Functions (a custom-made MATLAB function, define the name of the function, the input and the output variables, Calling Functions)

Week 12	Handle graphics and user interface. 1.pre-defined dialogs 2. Handle graphics a) Graphics

	objects b) Properties of objects c) Modifying properties of graphics objects
Week 13	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I
Week 14	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) II
Week 15	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction, MATLAB Environment, MATLAB Windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window).
Week 2	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.
Week 3	Variables and assignment statement, logical operator.
Week 4	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).
Week 5	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).
Week 6	Arguments and return values, M-file, input-output statement
Week 7	Control Statements (Conditional statements: If, Else, Elseif, switch case)
Week 8	Repetition statements: (While statement, For statement)
Week 9	Combination of conditional and repetition statements I
Week 10	Combination of conditional and repetition statements II
Week 11	Procedures and Functions(a custom-made Matlab function, define the name of the function, the input and the output variables, Calling Functions)
Week 12	Handle graphics and user interface. 1.Pre-defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects
Week 13	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I
Week 14	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) II

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to MATLAB for Engineers William J. Palm III	yes
Recommended Texts	INTRODUCTION TO MATLAB FOR ENGINEERING STUDENTS ,David Houcque	
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	Integral Mathematics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT12304				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	MIE		**College**	College of Engineering Techniques	
Module Leader	**Tabarak yahya abd**		**e-mail**	tabark.yehea@gu.edu.iq	
Module Leader's Acad. Title	Assist. lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	2.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Differential Mathematics	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية	
Module Objectives أهداف المادة الدراسية	1. To develop problem solving skills and understanding of Integral calculus through a broad range of Integration techniques. 2. To understand theory and methods of integrations and apply it on various types of functions. 3. This is the basic subject for all engineering fields 4. Demonstrate basic knowledge and understanding of a core of linear algebra and applied mathematics. 5. Introduce student to integration of trigonometric functions and their inverses.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the integration. 2. Interpret definite and indefinite integrals. 3. Integrate functions resulting in inverse trigonometric functions. 4. Integrate functions involving exponential and logarithmic functions. 5. Learn approximation techniques for integration. 6. Calculate the areas of curved regions by using integration methods. 7. Find the volume of a solid of revolution using various integration methods. 8. Learn how to find the length of a plane curve for a given function. 9.Teaching students how to calculate the inverses of matrices and how to identify them. 10. Teaching students how to find the solution of a homogeneous system of linear equations. 11. Teaching students how to find the eigenvalues of a matrix and the corresponding eigenvectors of a matrix. 12. Determine the diagonalizability of a given matrix.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. Introduction to integration. Methods of integration and Basics of Definite and indefinite Integration, Integration of trigonometric and inverse functions.Integration of the exponential functions, Integration of logarithmic functions. Integration of Hyperbolic and inverse hyperbolic functions, numerical integration and applications of the definite integrals. [30 hrs] Area of surface, Volume of revolution, Length of plane curve, Matrices and Inverse of matrix, Matrix DiagonalizationSolution of homogeneous systems, Eigenvalues, and Eigenvectors[40 hrs] Revision problem classes [3 hrs]

Learning and Teaching Strategies اسراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدرا سي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	3
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**	2	10% (10)	5 and 12	LO #1- #4 and #6 - #12
	Online assignments	2	10% (10)	3 and 13	LO #1- #4 and #6 - #12
	Report	1	10% (10)	14	LO #1- #6 and #8 - #11
	OnSite assignment	1	10% (10)	4 and 11	LO #1- #9
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #5
	Final Exam	3hr	50% (50)	16	LO #1- #12
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to integration.
Week 2	Methods of integration and Basics of Definite and indefinite Integration.
Week 3	Integration of trigonometric and inverse functions.
Week 4	Integration of the exponential functions.
Week 5	Integration of logarithmic functions.
Week 6	Integration of Hyperbolic and inverse hyperbolic functions.
Week 7	**Mid-term Exam** + numerical integration and applications of the definite integrals.
Week 8	Area of surface.
Week 9	Volume of revolution.
Week 10	Length of plane curve.
Week 11	Matrices and Inverse of matrix.
Week 12	Matrix Diagonalization
Week 13	Solution of homogeneous systems
Week 14	Eigenvalues and Eigenvectors
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Notes on Calculus II Integral Calculus Miguel A. Lerma	No
Recommended Texts	Thomas ' Calculus (pdf) Fouteenth edition Based on the original work by GEORGE B. THOMAS, JR.	No
Websites	https://sites.math.northwestern.edu/~mlerma/courses/math214-2-02f/notes/c2-all.pdf http://dl.konkur.in/post/Book/Paye/Thomas-Calculus-14th-Edition-%5Bkonkur.in%5D.pdf	

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
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Arabic Language**	**Module Delivery**
Module Type	**Basic**	**☒ Theory**
Module Code	**TCE133**	**☐ Lecture**
ECTS Credits	**2**	**☐ Lab**
SWL (hr/sem)	**50**	**☐ Tutorial**
		☐ Practical
		☐ Seminar

Module Level	UGI	**Semester of Delivery**	1
Administering Department	MIT	**College**	College of Engineering Techniques
Module Leader	Abdulhusain Ali Abdulhusain	**e-mail**	abdulhusain.a.abd@gu.edu.iq
Module Leader's Acad. Title	Assist. lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor		**e-mail**	
Peer Reviewer Name	Hind Adil Jaafar	**e-mail**	hindadil.alhaddad@gmail.com
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules
العالقة مع المواد الدراسية الاخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية

Module Aims أهداف المادة الدراسية	١. هداف المادة الدراسية هي أن يكون الطالب قادرا على: ٢. يتعرف على الاخطاء اللغوية المشتركة وتوضيح أسبابها وكيفية تجنبها. ٣. يتعلم القواعد المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة وكيفية كتابتها بشكل صحيح. ٤. يتعلم قواعد كتابة الالف الممدودة والمقصورة واستخدام الحروف الشمسية والقمرية بشكل صحيح. ٥. التعرف على الضاد والظاء ومعرفة كيفية التمييز بينهما في الكتابة ٦. يتعلم طرق كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية ٧. التعرف على علامات الترقيم واستخدامها بشكل صحيح في النصوص ٨. يفهم المفاعيل وكيفية استخدامها بشكل صحيح في النصوص ٩. يتعلم الارقام والاعداد واستخدامها في التعبير عن الكميات ١٠. يتجنب الأخطاء اللغوية الشعائعة في سياقات عملية لتعزيز فهم القواعد و تحسين المهارات اللغوية. ١١. يدرس النون و التنوين و فهم معاني حروف الجر و استخدامها بشكل صحيح في الجمل. ١٢. يركز على جوانب الشكلية للخطاب الاداري و كيفية كتابته باسلوب صحيح و مناسب. ١٣. التعرف على لغة الخطاب الاداري و فهم استخدامها في التواصل الاداري ١٤. يفهم نماذج من المراسلات الادارية لتطبيق المفاهيم و المهارات المكتسبة في الخطاب الاداري.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	. مخرجات التعلم للمادة الدراسية هي: ١. قدرة الطالب على تحليل وتعريف ألأخطاء اللغوية المشتركة وتطبيق القواعد الصحيحة لتجنبها. ٢. القدرة على استخدام القواعد اللغوية المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة بشكل صحيح. ٣. قدرة الطالب على استخدام الالف الممدودة والمقصورة بشكل صحيح واستخدام الحروف الشمسية والقمرية بطريقة صحيحة. ٤. تمكين الطلاب من التمييز بين الضاد و الظاء و تطبيق القواعد الصحيحة في الكتابة. ٥. القدرة على كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية. ٦. استخدام علامات الترقيم النصوص بشكل صحيح النصوص المكتوبة. ٧. فهم الطالب للفروق بين الاسم والفعل وتمكينهم من استخدامهما بشكل صحيح في الجمل. ٨. القدرة عل استخدام المفاعيل بشكل صحيح النصوص المكتوبة. ٩. استخدام الارقام والعدد بطريقة صحيحة للتعبير عن الكميات. ١٠. التمكن من تطبيق ألأخطاء اللغوية الشائعة في سياقات عملية وتصحيحها بشكل مناسب. ١١. فهم استخدام النون والتنوين ومعاني حروف الجر و استخدامها بشكل صحيح قي الجمل. ١٢. القدرة على كتابة الخطاب الاداري بأسلوب صحيح ومناسب وفهم لغة الخطاب الاداري. ١٣. تطبيق المفاهيم و المهارات المكتسبة في كتابة المراسالت الادارية بشكل صحيح وفعال.
Indicative Contents المحتويات الارشادية	**المحتوى الارشادي في مادة اللغة تشمل مجموعة من المفاهيم و المواضيع التي يتم تغطيتها خلال التعلم و من بين المحتويات الارشادية المهمة:** **مقدمة عن الاخطاء اللغوية و التعريف بالتاء المربوطة و التاء المطولة ز التاء المفتوحة (3 ساعات)** **قواعد كتابة الالف الممدودة والمقصورة والتعرف عل الحروف الشمسية والقمرية(3 ساعات)** **دراسة الضاد والظاء وتعلم طرق كتابتهما بشكل صحيح. (3 ساعات)** **تعلم كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية (3 ساعات)** **دراسة علامات الترقيم و تعلم طرق كتابتها بشكل صحيح (3 ساعات)** **التعرف على الاسم و القعل و التفريق بينهما و فهم القواعد المتعلقة بهما (3 ساعات)** **دراسة المفاعيل و تعلم استخدامها في الجمل اللغوية (3 ساعات)** **التعرف على الاعداد و استخدامها بشكل صحيح في العبارات ز الجمل (3 ساعات)** **دراسة الاخطاء اللغوية الشائعة و تطبيقاتها في التصوص اللغوية (3 ساعات)** **تعلم استخدام النون و التنوين وفهم معاني حروف الجر و استخدامها بشكل صحيح في الجمل (2 ساعات)** **التعرف على جوانب الشكلية للخطاب الاداري و فهم لغته و قواعده (2 ساعات)** **دراسة نماذج من المراسلات الادارية و تطبيقها في الكتابة (2 ساعات)**

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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	سرتاتيجيات التعلم والتعليم المستخدمة في مادة اللغة تشمل مجموعة متنوعة من النهج و التقنيات التي تعزز عملية التعلم للطلاب من بين هذه الاستراتيجيات: ١. لتفاعل النشط: يتم تشجيع الطالب على المشاركة والمشاركة الفعالة في الدروس من خلال لمناقشات الجماعية والانشطة التفاعلية ٢. التعلم التعاون: يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي و المشاريع الجماعية، حيث يتعاون الطالب مع بعضهم البعض لتحقيق أهداف التعلم المحددة ٣. التطبيق العملي: يتم توف ت فرص للطالب لتطبيق المفاهيم والمهارات المكتسبة في سياقات عملية وواقعية، مما يعزز التفاعل الفعال مع المادة ٤. استخدام التقنيات الحديثة: يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب و الانترنت للبحث والتعلم الذاتي ٥. توف تردود فعل فورية: تم توف تردود فعل فورية وتقييم مستمرللطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم عل تحسين أدائهم وتطوير مهاراتهم ٦. التنوع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والانشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب ٧. استخدام هذه الاسترا تيجيات، يتم تعزيز التفاعل والتعلم الفعال للطلاب على المشاركة واكتساب المعرفة والمهارات بشكل شامل وشيق تحفيزهم

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ15 اسبوعا

Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) االحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	5, 10,13	LO #1, 5 and 11
	Assignments	3	15% (15)	2, 11,14	LO # 3, 6 and 12
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-13
Summative assessment	Midterm Exam	2 hours	10% (10)	7	LO # 1-7
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

1-8	مقدمة عن الأخطاء اللغوية –التاء المربوطة والطويلة والتاء المفتوحة	الاسبوع الاول
9-14	قواعد كتابة االلف الممدودة والمقصورة – الحروف الشمسية والقمرية	الاسبوع الثاني
15-19	الضاد والظاء	الاسبوع الثالث
20-30	كتابة الهمزة	الاسبوع الرابع
31-36	علامات الترقيم	الاسبوع الخامس
37-44	الاسم والفعل والتفريق بينهما	الاسبوع السادس
45-50	المفاعيل + العـــدد	الاسبوع السابع
51-61	امتحان منتصف الفصل الدراسي	الاسبوع الثامن
62-69	تطبيقات الاخطاء اللغوية الشائعة	الاسبوع التاسع و العاشر
70-75	النون والتنوين ـ معاني حروف الجر	الاسبوع الحادي عشر
76-80	الجوانب الشكلية للخطاب الإداري	الاسبوع الثاني عشر
81-86	لغة الخطاب الإداري +نماذج من المراسلات الإدارية	سبوع الثالث عشر و الرابع عشر
	االستعداد لألمتحان النهائي	الاسبوع الخامس عشر

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	الاخطاء الشائعة ، تاليف: خالد بن هلال بن ناصر العنبري، مكتبة: الجيل الواعد، الطبعة الاولى قواعد الاملاء و علامات الترقيم، تاليف: عبدالسلام هارون، تحقيق: نبيل عبدالسلام هارون، دار الكتب العلمية، الطبعة الاولى 2005	Yes
Recommended Texts	اقسام الكلام العربي من حيث الشكل و الوظيفة، تاليف: الدكتور فاضل مصطفى الساق، تقديم الاستاذ الدكتور تمام حسان، مكتبة الخانجي، القاهرة، طبعة 1977م	No
Websites	The Collage E-Library	

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 Information معلومات المادة الدراسية					
Module Title	**Electronic Circuits I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT23302**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		UGII	**Semester of Delivery**		3
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Borak Karim		**e-mail**	borak.karim@gu.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		M.Sc.
Module Tutor	Borak Karim		**e-mail**	borak.karim@gu.edu.iq	
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	Ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Fundamentals of Electrical Engineering (AC) MIET1201	**Semester**	UGI_S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. The graduate gets scientific and applied skills of electronic circuits. 2. The graduated students will gain the ability of knowledge of different parts of electronic circuits. 3. Development and training the engineering technical staffs on the electronic circuits. 4. Preparation the research and studies to improve and develop the action of electronic circuits. 5. Prepare application engineers in technical and electronic engineering. 6. Put the proposals and alternatives for the electronic devices.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	1. Become aware of the general characteristics of electronic devices. 2. Be able to describe the difference types of electronic categories. 3. Develop a clear understanding of the basic operation and characteristics of electronic devices. 4. Become familiar with the use of equivalent circuits to analyze series, parallel, and series-parallel electronic networks. 5. Be able to predict the output response of an electronic networks. 6. Become familiar with the analysis of and the range of applications for electronic devices. 7. Become familiar with the basic construction and operation of the various types of electronic categories. 8. Be able to test a various type of electronic terminals. 9. Be able to determine the dc levels for the variety of important electronic circuits. 10. Understand how to measure the important voltage levels of electronic circuits. 11. Begin to understand the troubleshooting process as applied to electronic configurations. 12. Develop a sense for the stability factors of an electronic circuits. 13. Learn to use the equivalent model to find the important ac parameters for an amplifier. 14. Develop some skill in troubleshooting ac amplifier networks.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. <u>Part A Electronic Theory</u> Semiconductor Materials: Ge, Si, and GaAs 2, Covalent Bonding and Intrinsic Materials, n -Type and p -Type Materials , Semiconductor Diode , Transistor Construction ,Transistor Operation , Construction and Characteristics of JFETs ,Transfer Characteristics, Important Relationships ,Depletion-Type MOSFET Enhancement-Type MOSFET [10 hrs] Diode Applications -Load-Line Analysis, Series Diode Configurations, Parallel and

	Series–Parallel Configurations, Sinusoidal Inputs; Half-Wave Rectification Full-Wave Rectification , Clippers , Clampers Networks with a dc and ac Source, Zener Diodes , Voltage-Multiplier Circuits [12 hrs] Revision problem classes [6 hrs] <u>Part B - DC Electronic Circuits</u> BJT Transistor - Operating Point, dc bias configurations of a BJT transistor, Miscellaneous Bias Configurations of a BJT transistor 4.11 Design Operations of a BJT transistor, Multiple BJT Networks, Current Mirrors. [13 hrs] FET Transistor - biasing arrangements for the n and p channel JFET, 7.7 Depletion-Type MOSFETs, Enhancement-Type MOSFETs, Combination Networks, Universal JFET Bias, Practical Applications. [10 hrs] <u>Part C - AC Electronic Circuits</u> BJT Transistor - Amplification in the AC Domain, BJT Transistor Modeling, the r_e Transistor Model, Effect of RL and Rs, Determining the Current Gain, Cascaded Systems, Darlington Connection, Feedback Pair, The Hybrid Equivalent Model. [17 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy will be encourage active participation and engagement of students through activities such as group discussions, hands-on experiments, problem-solving tasks, and case studies. This approach promotes critical thinking, collaboration, and knowledge application and encourages students to explore and discover knowledge through inquiry and investigation. Pose open-ended questions or problem scenarios that require learners to research, analyze, and draw conclusions independently.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	125		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction -
Week 2	Semiconductors materials
Week 3	Diode Configurations
Week 4	Diode Networks with a dc and ac Source
Week 5	Zener Diodes
Week 6	Bipolar junction transistor
Week 7	Mid-term Exam
Week 8	DC biasing BJTs
Week 9	Multiple BJT Networks
Week 10	Field effect transistor and MOSFET
Week 11	Depletion-Type MOSFET

Week 12	Enhancement type MOSFET
Week 13	BJT AC Analysis
Week 14	BJT Transistor Modeling and Effect of RL and Rs
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Diode characteristics
Week 2	Lab 2: Half – wave Rectifier
Week 3	Lab 3: full wave Rectifier
Week 4	Lab 4: Filter for Halve – wave and full wave Rectifiers
Week 5	Lab 5: Voltage Doubler
Week 6	Lab 6: Voltage Tripler
Week 7	Lab 7: Positive Series Clipper
Week 8	Lab 8: Negative Series Clipper
Week 9	Lab 9: positive parallel Clipper
Week 10	Lab 10: Negative parallel Clipper
Week 11	Lab 11: Clamper
Week 12	Lab12: Zener Diode
Week 13	Lab13: Fixed Vi , Variable RL Zener Diode
Week 14	Lab14: Fixed RL , Variable Vi Zener Diode

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Electronic devices and circuit theory 11th edition, Robert L. Boylestad , Louis Nashelsky	Yes
Recommended Texts		No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme امخطط 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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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

Module Information معلومات المادة الدراسية					
Module Title	Electrical Machines			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT23303				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Ameer H. Morad		**e-mail**	Ameer.h.morad@gu.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	P. hd.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Asaad Mubdir Jassim		**e-mail**	asaad.m.jassim@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Fundamentals of Electrical Engineering (AC)	**Semester**	UGI-S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1- Study engineering concepts and their applications for electrical machines and transformers. 2- How electrical transformers work, how to connect them, and solve mathematical problems related to them and their types. 3- What are electrical machines and what are their classifications. 4- Knowledge and understanding of the basics of laws related to electrical technology materials. 5- Solve issues and issues and apply the rules of application related to electrical engineering. 6- Giving students confidence and ability to use mathematical foundations in applications on generators, electric motors. 7- Building interactive skills that help classify information and make engineering decisions. 8- Develop proposals and alternatives for electrical parts for medical devices
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	1. Learn how transformers work in electrical circuits. 2. List the various terms associated with electrical circuits and machines. 3. Summarize what is meant by electrical transformers and basic electrical machines of all kinds. 4. Discuss the interaction and participation of the number of windings, wire diameter and size of electrical transformers. 5. Description of electrical transformers, motors and generators with direct current and alternating current. 6. Determine the laws related to electrical transformers and their derivations. 7. Identify the equivalent circuits of electrical transformers and methods of calculating their efficiency. 8. Discuss the processes that lead to losses in transformers and electrical machines, and ways to reduce them and increase their efficiency. 9. Discuss the different characteristics of engines and generators, their main components, and the functioning of each. 10. Explain the two laws of machines and determine their efficiency, capacity and torque, and the laws of their formation. 11. Identify the relationship of transformers and electrical machines to medical devices. 12. Discuss the systems of connecting machines, ways of wrapping coils inside them, and the benefits of each. 13. Determining how to increase the efficiency of motors used in medical devices and methods of maintaining and repairing them. 14. Describe the types of motors included in the formation of medical devices and

	their classification
Indicative Contents المحتويات الارشادية	Indicative content includes the following. Part A - Single-phase electrical transformers Types of electrical transformers, their parts and components, their equivalent circuit, types of losses, how to calculate them, and how to calculate transformer efficiency through mathematical operations and efficiency laws. [10 hours] Part B - Three-phase electrical transformers Types of three-phase electrical transformers, calculating their cost, types of connections in their files, calculating their equivalent circuits, and deriving special laws for each connection [13 hours] Part C- Electromagnetic and electromechanical induction and the relationship between them and linear motion using those concepts and applications on linear motion and how to generate it. [10 hours] Part D- The electromotive force of single-phase machines, methods of generating them, their laws, and their calculation through mathematical issues and calculating currents, voltages, losses, and capacity. [10 hours] Part E- The electromotive force of the three-phase machines, methods of generating them, their laws, and their calculation through mathematical problems, types of coil connections, testing those machines, and calculating currents, voltages, losses, and real and apparent power. [15 hours] Instantaneous power and average power of alternating current, relative and apparent power. Types of electric motors and how they work [5 hours] Review problem categories [6 hours]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in the delivery of this unit is to encourage students to participate in the exercises, while improving and expanding their critical thinking skills at the same time. This will be achieved through classes and interactive tutorials and by looking at the types of simple experiments that include some of the electrical wiring activities in the laboratory curriculum that develop students' skills.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	125		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Transformers : single phase transformer and construction
Week 2	Transformers : single phase transformer and construction
Week 3	Theory of operation, no load and short circuit test.
Week 4	Equivalent circuit, auto–transformers, instrument transformers
Week 5	Equivalent circuit, auto–transformers, instrument transformers
Week 6	Three phase transformers, constructions methods of connection.
Week 7	Mid exam + Three phase transformers, constructions methods of connection.
Week 8	Electromechanical energy conversion principles relay operation.
Week 9	Electromechanical energy conversion principles relay operation.
Week 10	Motor characteristics, testing, calculation of losses and efficiency.
Week 11	Induction machines: equivalent circuit, basic equation, simple analysis testing.
Week 12	Single phase induction motor, methods of starting, siplitphase, capacitor short, capacitor run and shaded pole motors.
Week 13	Single phase induction motor, methods of starting, siplitphase, capacitor short, capacitor run and shaded pole motors.
Week 14	Synchronous machines, generators and motors, equivalent circuit, basic equation.
	Special machines: Reluctance motor , hysteresis motor , linear motor , stepper motor , dray cup type m motor , etc ……..
Week 15	Preparatory week before final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to measuring devices and identifying wattmeter
Week 2	Characteristics of single-phase electric transformers
Week 3	Open circuit test of transformers
Week 4	Load circuit for single phase transformers
Week 5	Three phase transfer theorem delta- delta
Week 6	Three phase transfer theorem delta- star
Week 7	Three phase transfer theorem star- delta
Week 8	Three phase transfer theorem star- star
Week 9	Characteristics of DC machine
Week 10	load test of three phases (I.M)
Week 11	open circuit test of three phases (I.M)
Week 12	short circuit test of three phases (I.M)

Week 13	Speed control of DC motor + load test of DC generator
Week 14	Series & Shunt DC machine connection. Compound connection of DC machine.
Week 15	Preparatory week before final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Electrical Machines and Drives Fundamentals and Advanced Modelling by Jan A. Melkebeek	Yes
Recommended Texts	Electrical Machines Drives and Power Systems 5th Edition By Theodore Wildi	No
Websites		

Grading Scheme امخطط 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: 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	Engineering Mathematics			**Module Delivery**	
Module Type	Support			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT23304				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Samer Razzaq hilal		**e-mail**	Samer.r.hilal@gu.edu.iq	
Module Leader's Acad. Title	Assist Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	Ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Integral Mathematics-MIET1204	**Semester**	UGI-S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Objectives أهداف المادة الدراسية	1. The goal of this module is to give students the necessary mathematical skills and tools to solve a range of design engineering issues. 2. Demonstrate basic knowledge and understanding of a core of vector analysis, linear algebra and applied mathematics. 3. Introduce student to Infinite and power series. 4. Understand how to solve Differential equations of the 1st and nth order. 5. Introduce student to Integral Transforms: Fourier series and Laplace transform and their applications in signal and systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define a vector, represent a vector by a directed straight line, add vectors, write a vector in terms of component vectors, write a vector in terms of component unit vectors, set up a coordinate system for representing vectors, and obtain the direction of a vector. 2. Explain the concept of a vector field and make sketches of simple vector fields in the plane 3. Memorize algebraic definitions and explain geometric meanings of dot and cross products 4. Compute dot and cross products given either algebraic or geometric information. 5. Apply dot or cross product to determine angles between vectors, scalar and vector projections, and volumes of parallelipipeds. 6. Memorize change of coordinate formulae between rectangular and cylindrical coordinate systems. 7. Memorize change of coordinate formulae between rectangular and spherical coordinate systems. 8. Identify coordinate surfaces in cylindrical and spherical coordinate systems as well as Converting equations between rectangular, cylindrical and spherical coordinate systems. 9. know what is meant by infinite series & its convergence, 10. Learn formation of Differential Equations - solutions of first order Differential Equations: Homogeneous-Non-homogeneous - Exact – Non-exact and solutions of nth order Differential Equations as well. 11. Definition of Laplace and Fourier transforms, Condition for existence, Laplace

	transform of standard functions, Properties of Laplace transform, 12. Application of Laplace and Fourier transforms to ordinary differential equations.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. Vector analysis,Vector fields,Orthogonal vectors and Dot Product, Parallel vectors and Cross Product, in addition to Partial Derivatives: Formulas for Del operation. [25 hrs] Polar Coordinates,Cylindrical Coordinates Systems, Spherical Coordinates Systems, and Infinite series.Power series. [23 hrs] Convergence and divergence series, Differential equation of the first order, Differential equation of *nth* order.Integral Transforms: Fourier series and Laplace transform.[25 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The major approach used to offer this module will be to promote student engagement in the exercises while also enhancing and broadening their critical thinking abilities. Classes and interactive lessons will be used to achieve this.

Student Workload (SWL) الحمل الدرسي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	4

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدرا سي الكلي للطالب خلال الفصل	**100**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (10)	4 and 10	LO #1- #4 and #5 - #9
	Online assignments	2	5% (10)	3 and 6	LO #1- #4 and #5 - #8
	Report	1	10% (10)	14	LO #1- #6 and #7 - #12
	OnSite assignment	2	5% (10)	5 and 14	LO #1- #5 and #6- #12
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #8
	Final Exam	3hr	50% (50)	16	LO #1- #12
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبو عي النظري

	Material Covered
Week 1	Vector analysis.
Week 2	Vector fields.
Week 3	Orthogonal vectors and Dot Product.
Week 4	Parallel vectors and Cross Product.
Week 5	Partial Derivatives: Formulas for Del operation.
Week 6	Polar Coordinates.
Week 7	**Mid-term Exam** + Cylindrical Coordinates Systems.
Week 8	Spherical Coordinates Systems.
Week 9	Infinite series.
Week 10	Power series.
Week 11	Convergence and divergence series.
Week 12	Differential equations.
Week 13	Differential equation of the first order.
Week 14	Differential equation of *nth* order.
Week 15	Integral Transforms: Fourier series and Laplace transform.
Week 16	**Preparatory week before the final Exam.**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html (**pdf**)	No
Recommended Texts	https://www.bau.edu.jo/UserPortal/UserProfile/PostsAttach/59003_3812_1.pdf	No
Websites	https://dokumen.tips/download/link/engineering-mathematics-5th-ed-by-k-a-stroud.html	

Grading Scheme امخطط 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	**Anatomy & Physiology**			**Module Delivery**	
Module Type	**Support or related learning activities**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** **Seminar**	
Module Code	**MIT23305**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Lina Nasseer Kassim		**e-mail**		
Module Leader's Acad. Title	Assist doctor		**Module Leader's Qualification**	P.hd.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	None
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1-Anatomy and Physiology are important medical discipline to understand structures and functions of human body cells, tissues, organs, organ systems, and as a whole system, how it works and the relationships between body parts. 2- This mode unit consists of main elements of anatomy and physiology, the terminology used, and how our body control itself. 3- Students will be able to understand how medical device work with the human body and what the benefit from it. 4- To understand the level of organization of the human organism and the homeostatic system. 5- To understand the chemical structure, chemical reactions and their control with acid-base balance in human body.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	1. Demonstrate correct usage of the terminology used to describe anatomical structures. 2. Describe the organization of cells and tissues. 3. Describe the principles relating to the structure of connective tissues, skeletal muscle, bones, and joints. 4. Describe the principles of excitable tissues. 5. Describe the structure and function of the human eye and ear and the mechanisms of vision and hearing. 6. Describe the principles of sensorimotor control. 7. Describe cardiac mechanics and cardiac biophysics. 8. Develop quantitative descriptions of physiological properties and systems. 9. Describe the application of technologies and techniques for investigating the structure and function of the body. 10. Demonstrate communication skills (oral and written) to describe the structure and function of the human body. 11. Describe basic structural and functional features of the major organ systems within the human body. 12. Define basic biological processes essential for maintenance of homeostasis. 13. Correlate specific structural features of human cells, tissues, organs and systems of the human body with their normal functions, and identify the changes that occur during human development, ageing and disease.
Indicative Contents	Topics include:

المحتويات الارشادية	• Anatomical terminology (5 hrs). • The structure and appearance of cells and tissues (6 hrs). • The appearance of bone and cartilage, the organization of dense connective tissues (6 hrs). • Skeletal muscle structure and function. Principles of excitable tissues. [15 hr] • The structure and function of sensory systems, including the eye and vision and the ear and hearing. • Principles of sensory motor control. Cardiac mechanics and cardiac biophysics.[10 hr] • Multiscale modelling of physiological systems (6 hrs). • Technologies, quantitative measurements and experimental techniques used to investigate the structure and function of different tissues, organs and organ systems. [15 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies employed in this module can vary depending on the specific course. However, here are some common strategies that may be used with this course: **<u>Teaching methods include:</u>** • lectures • seminars • tutorials • lab experiments • design assignments. • industrial visits • professional training • a variety of projects **<u>Assessment :</u>** methods of assessment include a combination of: • coursework • group project reports • lab reports • written exams.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	36	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	20%	2,4,6, 8, 10, 12	LO : 1,2,3… 14
	Assignments	2	5%	7, 10	LO : 6, 13
	Projects / Lab.	2	5%	5, 9	LO : 1-5, 6-9
	Report	1	10%	11	LO : 1,2,3 ……12
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO : 1-7
	Final Exam	4 hr	50 % (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Anatomy and Physiology.
Week 2	The Chemical level of Organization.
Week 3	The Cell level of Organization
Week 4	The Tissue level of organization
Week 5	The Integumentary system
Week 6	The Muscular system
Week 7	Mid Exam
Week 8	The Skeletal System
Week 9	The Central Nervous System
Week 10	The Peripheral Nervous System and Autonomic Nervous System.

Week 11	The Sense and Sensory System.
Week 12	The Endocrine System.
Week 13	The Cardiovascular System: The Heart, Blood Vessels And Blood.
Week 14	The Respiratory System. The Urinary System.
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1 measurement of body temperature
Week 2	Lab 2 Coagulation
Week 3	Lab 3 The blood
Week 4	Lab 4 Membrane transport
Week 5	Lab 5 Complete blood count
Week 6	Lab 6 Hemoglobin (Hb) Determination
Week 7	Lab 7 Erythrocyte Sedimentation Rate ESR
Week 8	Lab 8 Total leucocyte count
Week 9	Lab 9 Total Red Blood Cell R B C count
Week 10	Lab 10 Platelets count
Week 11	Lab 11 Blood film
Week 12	Lab 12 Blood group
Week 13	Lab 13 Blood sugar
Week 14	Lab 14 Blood urea & Blood pressure

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Frederic H Martini, Edwin F Bartholomew, William C. Ober, Claire W. Garrison, Kathleen Welch, & Ralf T Hutchings (2007), *Essentials of Anatomy and Physiology*, 14th edn, Pearson Education, San Francesco, USA.	No
Recommended Texts	**1- Human Physiology Study Guide** **2- Human Anatomy & Physiology: Help and Review**	
Websites	Interactive physiology, Copyright © 2005 Pearson Education, Inc. publishing as Benjamin	

Grading Scheme امخطط 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	Laboratory Medical Instrumentation I			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	MIET23301				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Module Leader's Acad. Title	Assist doctor		**Module Leader's Qualification**	P.hd.	
Module Tutor	None		**e-mail**		
Peer Reviewer Name	Dr. Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills to diagnose the medical instruments faults. 2. The graduated students will gain the ability of knowledge of different parts of medical instruments. 3. Development and training the engineering technical staff on medical device maintenance. 4. Preparation of the research and studies to improve and develop the action of medical devices. 5. Prepare application engineers in technical and electronic engineering. 6. Put the proposals and alternatives for the medical devices.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Define the Medical instrumentation and recognize what is the laboratory security system and determine the quality control results in the medical laboratory. 2. Classify the medical instrumentation. 3. Describe the hospital design. 4. Design and Describe the operating room. 5. Understand patient safety laws and rules. 6. Define and understand the medical Laboratory Instruments and Tools. 7. Calibration of Medical Laboratory Instruments. 8. Define, explain, and describe Balances and understand the electrical and electronic parts. 9. Explain the types of balances and their medical application. 10. Define, explain, and describe water bath and understand the electrical and electronic parts. 11. Define, explain, and describe wax bath and understand the electrical and electronic parts.
Indicative Contents المحتويات الارشادية	Indicative content includes the following: Medical instrumentation classification, analysis lists, work security rules, and best laboratory use guidelines [14 hr]. Calibration of instruments criteria, types, components, advantages and disadvantages, physical and medical applications. [14hr] Medical instrumentation faults and maintenance, analysis lists, work security rules, and best laboratory use guidelines [14hr]. Patient safety and hospital design rules [15h]. Classification of different types of medical laboratories like medical, biological histological and chemical [13hr].

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 design, while at the same time refining and expanding their medical instrumentations thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	81	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	175		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Definition to medical instruments.
Week 2	Introduction to medical instruments.
Week 3	Classification of medical instrumentation.
Week 4	Design of hospitals.
Week 5	Design of operating room.
Week 6	Patient Safety.
Week 7	Mid-term exam
Week 8	Medical Laboratory Instruments and Tools-1
Week 9	Medical Laboratory Instruments and Tools- 2
Week 10	Classification of different medical laboratories
Week 11	Calibration of Medical Laboratory Instruments.
Week 12	Introduction to Balance.
Week 13	Balance and their types.
Week 14	Wax bath. Water bath.
Week 15	The preparatory week before the final exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to medical instruments.
Week 2	Classification of medical instrumentation.
Week 3	Medical Laboratory Instruments and Tools.
Week 4	Patient Safety.
Week 5	Calibration of Medical Laboratory Instruments.
Week 6	Classification of different medical lab.

Week 7	Introduction to Balance.
Week 8	Balance and their types.
Week 9	Wax bath.
Week 10	Water bath.
Week 11	Exam.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Biomedical device technology ,by ANTHONY Y. K. CHAN, MSc, MEng, PEng, CCE	
Recommended Texts	Ananthi ,2005,"A text book of medical instruments	
Websites		

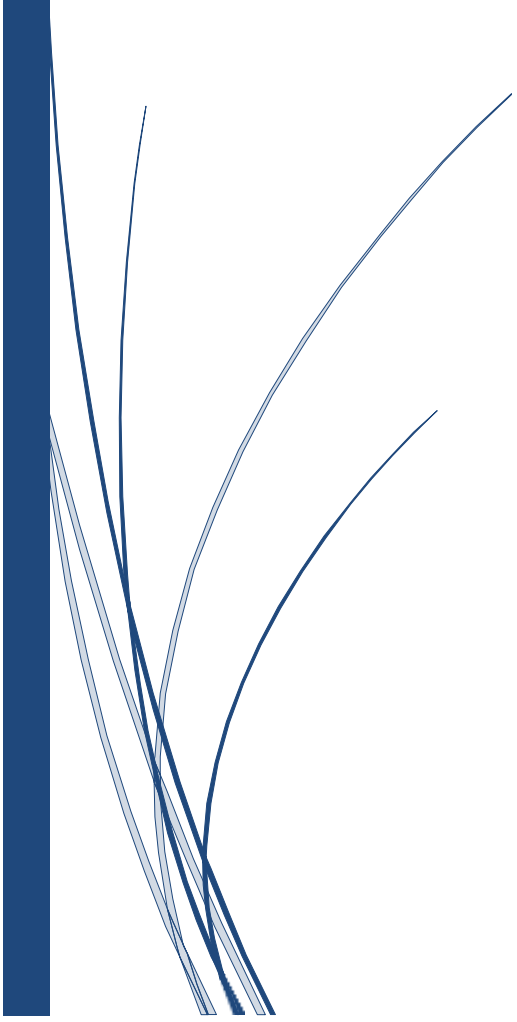
Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	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.

23/10/2026

Computer Applications

MIT23306



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer applications**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TCE234**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGII 2	**Semester of Delivery**		3
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Batool Rafid Natiq		**e-mail**	batool.r.natiq@gu.edu.iq	
Module Leader's Acad. Title		Asst. Lecturer	**Module Leader's Qualification**		M.Sc.
Module Tutor			**e-mail**		
Peer Reviewer Name		Dr. Lina Nasseer Kassim	**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date		23/10/2024	**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	The module aims to: 1. To provide an overview of Microsoft Word, Excel, and PowerPoint, and familiarize students with their key features and user interfaces. 2. To develop essential skills in creating, saving, and opening documents in Microsoft Word, including formatting text and paragraphs and working with styles and themes. 3. To explore advanced features in Microsoft Word, such as page layout options, working with headers, footers, and page numbers, and incorporating tables, images, and objects. 4. To introduce spreadsheets and worksheets in Microsoft Excel, and develop students' skills in data entry, manipulation, and basic formulas and functions. 5. To delve into advanced Microsoft Excel features, including working with ranges and cells, sorting and filtering data, and creating charts and graphs. 6. To guide students in creating and editing slides in Microsoft PowerPoint, applying themes and templates, and adding text, images, and multimedia elements. 7. To explore advanced PowerPoint features, such as slide transitions, animations, using SmartArt and shapes, and utilizing presenter tools and slide show options. 8. To teach word processing techniques in Microsoft Word, such as mail merge, document collaboration, creating professional documents, and managing references and citations. 9. To provide advanced data analysis skills in Microsoft Excel, covering advanced formulas and functions, data validation, conditional formatting, and PivotTables. 10. To explore collaboration and sharing features in Microsoft Office, including sharing and co-authoring documents, using comments and track changes, and protecting documents.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate a solid understanding of Microsoft Word, Excel, and PowerPoint, including their key features, user interfaces, and common functions. 2. Create, format, and manage documents effectively in Microsoft Word, utilizing styles, themes, page layout options, headers, footers, tables, images, and objects. 3. Utilize Microsoft Excel for data entry, manipulation, basic calculations using formulas and functions, sorting and filtering data, and creating charts and graphs. 4. Develop proficiency in creating and editing slides, applying themes, templates, and multimedia elements, and utilizing advanced features in Microsoft PowerPoint. 5. Employ word processing techniques in Microsoft Word, including mail merge, document collaboration, creating professional documents, and managing references and citations. 6. Apply advanced data analysis skills in Microsoft Excel, including advanced formulas and functions, data validation, conditional formatting, and PivotTables. 7. Collaborate and share documents effectively using Microsoft Office features, such as sharing and co-authoring, comments and track changes, and document protection.

	8. Automate tasks in Word, Excel, and PowerPoint using macros, customizing the ribbon, creating shortcuts, and integrating data between applications for enhanced productivity and efficiency.
Indicative Contents المحتويات الارشادية	The indicative contents for the Computer Application module may include: 1. Introduction to Microsoft Office Suite: [8 hrs.] 2. Microsoft Word Basics: [8 hrs.] 3. Advanced Microsoft Word Features: [8 hrs.] 4. Microsoft Excel Basics: [8 hrs.] 5. Advanced Microsoft Excel Features: [8 hrs.] 6. Microsoft PowerPoint Basics: [8 hrs.] 7. Advanced Microsoft PowerPoint Features: [8 hrs.] 8. Word Processing Techniques in Microsoft Word: [8 hrs.] 9. Data Analysis in Microsoft Excel: [8 hrs.] 10. Presentation Design in Microsoft PowerPoint: [8 hrs.] 11. Collaboration and sharing in Microsoft Office: [8 hrs.] 12. Automating Tasks in Microsoft Office: [8 hrs.] 13. Integrating Office Applications: [8 hrs.] 14. Advanced Tips and Tricks: [8 hrs.] 15. Final Projects and Review: [8 hrs.]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies employed in the applied mathematics module are designed to facilitate active engagement, critical thinking, and practical application of mathematical concepts. The following strategies are commonly used: 1. Lectures: Lectures serve as the primary mode of content delivery, where instructors present key concepts, theories, and techniques. Lectures may include visual aids, examples, and demonstrations to enhance understanding and provide real-world context. 2. Interactive Discussions: Interactive discussions encourage student participation and facilitate deeper understanding of the material. Students are encouraged to ask questions, share their insights, and engage in discussions on specific topics or problem-solving strategies. 3. Problem-solving Sessions: Problem-solving sessions allow students to apply mathematical principles to solve a variety of problems. These sessions may be conducted in groups or individually, allowing students to collaborate, exchange ideas, and develop problem-solving skills. 4. Practical Exercises: Practical exercises involve hands-on application of mathematical concepts through computational tasks, modeling exercises, or simulations. These exercises reinforce theoretical knowledge and help students develop proficiency in using mathematical tools and software. 5. Case Studies and Real-world Applications: Case studies and real-world applications demonstrate the relevance of mathematics in various fields. Students analyze and solve mathematical problems based on real-life scenarios, enabling them to connect theoretical concepts with practical applications. 6. Computer-based Learning: Computer-based learning resources, such as online tutorials, interactive simulations, and mathematical software, are utilized to enhance students' understanding and proficiency in applying mathematical techniques. 7. Group Projects: Group projects promote teamwork, communication, and problem-solving skills. Students work collaboratively on

	mathematical projects or research assignments, allowing them to explore advanced topics or applications of mathematics. 8. Self-directed Learning: Students are encouraged to take responsibility for their learning by engaging in self-directed study. This may involve reading recommended textbooks, exploring additional resources, and practicing problem-solving independently. 9. Assessments: Regular assessments, including quizzes, tests, and assignments, evaluate students' understanding and application of mathematical concepts. These assessments provide feedback and help track progress throughout the module. 10. Tutorial Sessions: Tutorial sessions provide opportunities for students to seek clarification, discuss challenging topics, and receive individualized guidance from instructors or teaching assistants.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15اسبوعا

Structured SWL (h/sem) الحمل الدراس المنتظم للطالب خلال الفصل	49	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراس غير المنتظم للطالب خلال الفصل	26	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراس الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Microsoft Office Suite • Overview of Microsoft Word, Excel, and PowerPoint • Understanding the user interface and common features
Week 2	Microsoft Word Basics • Creating, saving, and opening documents • Formatting text and paragraphs • Working with styles and themes

Week 3	Advanced Microsoft Word Features • Page layout and formatting options • Working with headers, footers, and page numbers • Using tables, images, and other objects
Week 4	Microsoft Excel Basics

	• Introduction to spreadsheets and worksheets • Data entry and manipulation • Formulas and functions
Week 5	Advanced Microsoft Excel Features • Working with ranges and cells • Sorting and filtering data • Creating charts and graphs
Week 6	Microsoft PowerPoint Basics • Creating and editing slides • Applying themes and templates • Adding text, images, and multimedia elements
Week 7	Mid Exam + Advanced Microsoft PowerPoint Features • Slide transitions and animations • Using SmartArt and shapes • Presenter tools and slide show options
Week 8	Word Processing Techniques in Microsoft Word • Mail merge and document collaboration • Creating professional documents (reports, resumes, etc.) • Managing references and citations
Week 9	Data Analysis in Microsoft Excel • Advanced formulas and functions • Data validation and conditional formatting • PivotTables and data visualization
Week 10	Presentation Design in Microsoft PowerPoint • Design principles for effective presentations • Customizing slide layouts and master slides • Adding interactive elements (hyperlinks, buttons, etc.)
Week 11	Collaboration and Sharing in Microsoft Office • Sharing and co-authoring documents • Using comments and track changes • Protecting documents and controlling access
Week 12	Automating Tasks in Microsoft Office • Macros and automation in Word, Excel, and PowerPoint • Customizing the ribbon and creating shortcuts • Using add-ins and productivity tools
Week 13	Integrating Office Applications • Linking data between Word, Excel, and PowerPoint • Embedding objects and creating dynamic content • Importing and exporting data
Week 14	Advanced Tips and Tricks • Time-saving techniques and shortcuts • Troubleshooting common issues • Customizing settings and options
Week 15	Final Projects and Review • Students work on individual or group projects using Word, Excel, and PowerPoint • Review of key concepts and features covered throughout the course
Week 16	Preparatory week before the final Exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	• Introduction to Lab Environment and Office Suite - Lab setup and software installation. Overview of Microsoft Office Suite tools and features.
Week 2	• Microsoft Word Lab - Creating, editing, and formatting documents. Inserting and formatting images and tables.
Week 3	• Microsoft Excel Lab - Creating spreadsheets and entering data. Formulas and functions for calculations.
Week 4	• Microsoft PowerPoint Lab - Creating, editing, and designing slides. Adding multimedia elements and animations.
Week 5	• Word Processing Techniques Lab - Mail merge and document collaboration exercises. Creating professional documents with advanced formatting.
Week 6	• Data Analysis Lab with Excel - Advanced formula and function exercises. Sorting, filtering, and analyzing data.
Week 7	• Presentation Design Lab with PowerPoint - Applying design principles to create visually appealing slides. Adding interactive elements and customizing slide layouts.
Week 8	• Collaboration and Sharing Lab - Collaborative document editing and reviewing. Sharing and protecting documents with permissions.
Week 9	• Automation and Customization Lab - Recording and running macros for repetitive tasks. Customizing the ribbon and creating shortcuts.
Week 10	• Integrating Office Applications Lab - Linking and embedding data between Word, Excel, and PowerPoint. Importing and exporting data between applications.
Week 11	• Advanced Tips and Tricks Lab - Exploring time-saving techniques and productivity hacks. Troubleshooting common issues and errors.
Week 12-15	• Project-based Labs - Students work on individual or group projects that integrate Word, Excel, and PowerPoint skills. Projects can involve tasks such as creating a professional report, analyzing data, or designing an interactive presentation.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	M. E. Vermaat, S. M. Freund, C. Hoisington, and E. Schmieder, "Microsoft Office 365 & Office 2019: Introductory," Boston, MA: Cengage Learning, 2020.	Yes
Recommended Texts	Triad Interactive, Inc., "Microsoft Office 2019: A Skills Approach," Boston, MA: Cengage Learning, 2019.	Yes
Websites	The Collage E-Library	

Grading Scheme امخطط 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 (قد الم ع الج ة)	(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	**The crimes of the Ba'ath regime in Iraq**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**TCE233**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	2		**Semester of Delivery**	3	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	humam ali sabeeh		**e-mail**	humam.a.sabeeh@gu.edu.iq	
Module Leader's Acad. Title	Assist.Lecturer		**Module Leader's Qualification**	M.SC.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Farah Salah fakhry		**e-mail**	farah.s.fakhry@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية

Module Aims أهداف المادة الدراسية	يهدف هذا المقرر الدراسي إلى تعزيز فهم الطالب للجرائم واالنتهاكات التي وقعت خالل فترة نظام البعث في العراق وتأثيرها على الافراد والمجتمع، وتشجيع التحليل والنقاش حول هذه القضايا المهمة. ومن ابرز االهداف للمادة الدراسية هي ان يكون الطالب قادراً على أن ١. فهم مفهوم الجرائم وأقسامها ٢. دراسة جرائم نظام البعث والقوانين المتعلقة بها ٣. التعرف على الجرائم النفسية واالجتماعية وآثارها على الفرد والمجتمع ٤. تحليل االنتهاكات القانونية في العراق، بما في ذلك االنتهاكات لحقوق الانسان والجرائم ذات الصلة ٥. فهم الجرائم البيئية وآثارها، بما في ذلك التلوث وتدمير المدن والقرى وتجفيف الاهوار ٦. دراسة جرائم المقابر الجماعية وفهم أحداث المقابر والتصنيف الزمني لها في العراق.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	مخرجات التعلم للمادة الدراسية هي: ١. فهم مفهوم الجرائم وقدرة الطالب على تصنيف الجرائم وفقً لاقسامها ٢. تحليل جرائم نظام البعث وفهم القوانين المتعلقة بها، بما في ذلك الجرائم الدولية ٣. القدرة على التعرف على الجرائم النفسية لنظام البعث وفهم الاثار النفسية لجرائم نظام البعث على الافراد والمجتمع. ٤. القدرة على التعرف على الجرائم الاجتماعية لنظام البعث الاثار الاجتماعية لجرائم نظام البعث على الافراد والمجتمع. ٥. التعرف على الانتهاكات القانونية لنظام البعث في العراق وفهم أنواع الانتهاكات ومكان احتجاز الافراد. ٦. التعرف على صور انتهاكات حقوق الانسان وجرائم السلطة التي وقعت خالل فترة نظام البعث ٧. التعرف على الانتهاكات السياسية والعسكرية لنظام البعث ٨. فهم الجرائم البيئية لنظام البعث والقدرة على تحليل تأثيرها على البيئة والمجتمع ٩. دراسة جرائم المقابر الجماعية لنظام البعث ١٠. فهم الاحداث المرتبطة بجرائم المقابر الجماعية وتصنيفها زمنيًا.
Indicative Contents المحتويات الارشادية	المحتويات الارشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خالل عملية التعلم. ومن بين المحتويات اإلرشادية المهمة: ١. تعريف الجريمة لغة واصطال ًحا، مفهوم الجريمة، اقسام الجريمة ٢. جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005 ٣. الجرائم النفسية والاجتماعية وأثارها ٤. عسكرة المجتمع، موقف النظام البعثي من الدين ٥. انتهاكات القوانين العراقية، صور انتهاكات حقوق الانسان وجرائم السلطة ٦. بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث ٧. أماكن السجون والاحتجاز لنظام البعث ٨. الجرائم البيئية لنظام البعث في العراق ٩. جرائم المقابر الجماعية ١٠. أحداث مقابر اإلبادة الجماعية المرتكبة من النظام البعثي في العراق ١١. التصنيف الزمني لمقابر الابادة الجماعية في العراق للمدة 1963م - 2003م

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	ستراتيجيات التعلم والتعليم المستخدمة في مادة جرائم حزب البعث البائد تشمل مجموعة متنوعة من النهج والتقنيات التي تعزز عملية التعلم للطالب. من بين هذه الاستراتيجيات: 1.التفاعل النشط: يتم تشجيع الطالب على المشاركة والمشاركة الفعالة في الدروس من خالل المناقشات الجماعية والانشطة التفاعلية. 2.التعلم التعاوني: يشجع التعاون والتعاون بين الطالب من خالل العمل الجماعي والمشاريع الجماعية، حيث يتعاون الطالب مع بعضهم البعض لتحقيق أهداف التعلم المحددة. 3.استخدام التقنيات الحديثة: يستفيد الطالب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب والانترنت للبحث والتعلم الذاتي. 4.توفير ردود فعل فورية: يتم توفير ردود فعل فورية وتقييم مستمر للطالب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم على تحسين أدائهم وتطوير مهاراتهم. 5.التنويع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والانشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطالب..

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراس الكلي للطالب خلال الفصل	50		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

الاسبوع الاول	تعريف الجريمة لغة واصطالحاً حا، مفهوم الجريمة، اقسام الجريمة	
الاسبوع الثاني	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005	
الاسبوع الثالث	الجرائم النفسية لنظام البعث وفهم الاثار النفسية لجرائم نظام البعث على الافراد والمجتمع.	
الاسبوع الرابع	الجرائم الاجتماعية لنظام البعث وفهم الاثار الاجتماعية لجرائم نظام البعث على الافراد و المجتمع	
الاسبوع الخامس	انتهاكات القوانين العراقية	
الاسبوع السادس	بعض قرارات الانتهاكات السياسية و العسكرية لنظام البعث	
الاسبوع السابع	امتحان نصف الفصل	
الاسبوع الثامن	الجرائم البيئية لنظام البعث في العراق (التلوث الحربي وسياسة الارض المحروقة)	
الاسبوع التاسع و العاشر	تجفيف الاهوار و تجريف بساتين النخيل والاشجار والمزروعات	

الاسبوع الاحادي عشر و الثاني عشر	جرائم المقابر الجماعة واحداث مقابر الإبادة الجماعية المرتكبة من النظام البعث في العراق	
الاسبوع الثالث عشر و الرابع عشر	التصنيف الزمني لمقابر الابادة الجماعية في العراق للمدة من(1963-2003)م	
ألسبوع السادس عشر	التهيئة لامتحان النهائي	

Module Evaluation

تقييم المادة الدراسية

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

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	منهاج وزارة التعليم العالي والبحث العلمي العراقية - جرائم نظام البعث في العراق 2023	Yes
Recommended Texts		No
Websites	The Collage E-Library	

Grading Scheme مخطط الدرجات				
Group	**Grade**	**التقدير**	**Marks (%)**	**Definition**
Success	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
Group (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 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	Laboratory Medical Instrumentation II			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	MIT24301				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	UGII		**Semester of Delivery**	4	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Module Leader's Acad. Title	Assist Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Dr. Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Laboratory Medical Instrumentation I	**Semester**	**UGII-S3**
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills to diagnosis the medical instruments faults. 2. The graduated students will gain the ability of knowledge of different parts of medical instruments. 3. Development and training the engineering technical staffs on the medical device maintenance. 4. Preparation of the research and studies to improve and develop the action of medical devices. 5. Put the proposals and alternatives for the medical devices. 6. To describe the types of laboratory medical instruments. 7. To explain the principal work of the laboratory medical devices techniques. 8. To understand the maintenance of laboratory medical devices and their electrical and mechanical faults.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Introduction about the laboratory Design, Rules and limitations. 2. Define, explain, and describe the centrifuge and understand the electrical and electronic parts. 3. Define, explain, and describe Microscope and understand the electrical and electronic parts. 4. List and recognize the types of microscopes. 5. Define, explain, and describe Polymerase chain reaction (PCR). and understand the electrical and electronic parts. 6. Definition of Laboratory incubators and explain their applications. 7. List and understand the types of Laboratory Incubators. 8. Define and explain Oven and its medical application. 9. Define and explain Autoclave and its medical application. 10. Describe and understand water distillation and its application with the medical field. 11. Definition and understanding of the CBC System. 12. Define the principle of CBC Medical system. 13. Faults and maintenance of medical instrumentations
Indicative Contents المحتويات الارشادية	Indicative content includes the following: Medical instrumentation definition, analysis lists, work security rules, and best laboratory use guidelines [14hr]. Laboratory instruments criteria, types, components, advantages and

	disadvantages, physical and medical application. [12hr]. Medical instrumentation faults and maintenance, analysis lists, work security rules, and best laboratory use guidelines [14 hr]. Explain Polymerase chain reaction (pcr)and definition of Laboratory incubators[14 hr]. Types of Laboratory Incubators and oven and its medical application[14hr]. Autoclave medical application and water distillation[14hr].

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 design, while at the same time refining and expanding their medical instrumentations thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	% (1 0)	3,10	LO # 1,2,3…..14 ,
	Assignments	2	% (10)	4,8	LO # 6,13
	Projects / Lab.	1	%(10)	6	LO #3
	Report	2	% (10)	5,9	LO # 7,12
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	14	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction about the laboratory Design.
Week2	Definition of Centrifuge
Week 3	Applications of Centrifuge
Week 4	Definition of Microscopes.
Week 5	Types of Microscopes.
Week 6	Water distillation
Week7	Mid Term exam
Week 8	Oven and its medical application.
Week 9	Autoclave and its medical application.
Week 10	Definition of Laboratory incubators.
Week 11	Types of Laboratory Incubators.
Week 12	Polymerase chain reaction (PCR).
Week 13	Applications of (PCR)
Week 14	Definition of Complete Blood Counter (CBC) Principle of (CBC)
Week 15	A preparatory week before final exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction about the laboratory Design
Week 2	Centrifuge
Week 3	Microscopes.
Week 4	Types of Microscopes.
Week 5	Water distillation
Week6	Oven and its medical application.
Week7	Autoclave and its medical application.
Week 8	Laboratory Incubators.
Week 9	Polymerase chain reaction (PCR).
Week10	Complete Blood Counter (CBC)
Week11	Faults and maintenance of medical lab. instruments

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Biomedical device technology ,by ANTHONY Y. K. CHAN, MSc, MEng, PEng, CCE	
Recommended Texts	Ananthi ,2005,"A text book of medical instruments	
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.

Electronic Circuits Ⅱ

Module Information معلومات المادة الدراسية					
Module Title	**Electronic Circuits II**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT24302**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		UG11	**Semester of Delivery**		4
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**		M.Sc.
Module Tutor			**e-mail**		
Peer Reviewer Name	Asaad Mubdir Jassim		**e-mail**	asaad.m.jassim@gu.edu.iq	
Scientific Committee Approval Date			**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Electronics Circuits I-MIT23302	**Semester**	UGII-S3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. The graduate get scientific and applied skills of electronic circuits 2. The graduated students will gain the ability of knowledge of different parts of electronic circuits. 3. Development and training the engineering technical staffs on the electronic circuits. 4. Preparation the research and studies to improve and develop the action of electronic circuits. 5. Prepare application engineers in technical and electronic engineers. 6. Put the proposals and alternatives for the electronic devices.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	1. Become aware of the general characteristics of electronic devices. 2. Be able to describe the difference types of electronic categories. 3. Develop a clear understanding of the basic operation and characteristics of electronic devices. 4. Become familiar with the use of equivalent circuits to analyze series, parallel, and series-parallel electronic networks. 5. Be able to predict the output response of an electronic networks. 6. Become familiar with the analysis of and the range of applications for electronic devices. 7. Become familiar with the basic construction and operation of the various types of electronic categories! 8. Be able to test a various type of electronic terminals. 9. Be able to determine the dc levels for the variety of important electronic circuits. 10. Understand how to measure the important voltage levels of electronic circuits. 11. Begin to understand the troubleshooting process as applied to electronic configurations. 12. Develop a sense for the stability factors of an electronic circuits. 13. Learn to use the equivalent model to find the important ac parameters for an amplifier. 14. Develop some skill in troubleshooting ac amplifier networks.
Indicative Contents المحتويات الارشادية	Indicative content includes the following. <u>Part A Electronic Theory</u> JFETs: n -channel, p -channel, TRANSFER CHARACTERISTICS, Shockley's Equation , Shorthand Method [10 hrs] FET Biasing -Fixed-bias configuration, self-bias configuration, voltage-divider bias arrangement; common gate configuration , depletion-type MOSFETs , enhancement-type MOSFET [10 hrs]

	Revision problem classes [6 hrs] Part B – Frequency response Decibels- General Frequency Considerations, Low-Frequency Analysis—Bode Plot, Low-Frequency Response—BJT Amplifier with RL, Low-Frequency Response—FET Amplifier, High-Frequency Response—BJT Amplifier, High-Frequency Response—FET Amplifier [12 hrs] Operational Amplifiers - Differential Amplifier Circuit, BiFET, BiMOS, and CMOS Differential Amplifier Circuits, Op-Amp Basics, Practical Op-Amp Circuits, Op-Amp Specifications—DC Offset Parameters. [12 hrs] Part C - Power Amplifiers Series-Fed Class A Amplifier- Transformer-Coupled Class A Amplifier, Class B Amplifier Operation, Class B Amplifier Circuits, Amplifier Distortion.[10 hrs] Power Supplies (Voltage Regulators) [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be encourage active participation and engagement of students through activities such as group discussions, hands-on experiments, problem-solving tasks, and case studies. This approach promotes critical thinking, collaboration, and knowledge application and encourage students to explore and discover knowledge through inquiry and investigation. Pose open-ended questions or problem scenarios that require learners to research, analyze, and draw conclusions independently.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	150		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	FET Amplifiers.
Week 2	JFET Small-Signal Model
Week 3	General Frequency Considerations
Week 4	BJT frequency response
Week 5	JFET frequency response
Week 6	Power amplifier.
Week 7	Mid- Exam
Week 8	Series-Fed Class A Amplifier
Week 9	Class B,C and D amplifiers
Week 10	Feedback and Oscillator Circuits
Week 11	PNPN and Other Devices

Week 12	Operational amplifier
Week 13	Operational amplifier applications
Week 14	Power Supplies Voltage Regulators
Week 15	**Preparatory week before final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Common emitter transistor characteristics
Week 2	Lab 2: Common collector transistor
Week 3	Lab 3: Common emitter amplifier
Week 4	Lab 4: Transistor biasing (part 1)
Week 5	Lab 5: Transistor biasing (part 2)
Week 6	Lab 6: common collector amplifier
Week 7	Lab 7: Common base amplifier
Week 8	Lab 8: Collector feedback amplifier circuit
Week 9	Lab 9: Voltage divider biasing circuit
Week 10	Lab 10: Emitter follower
Week 11	Lab 11: JFET characteristics
Week 12	Lab12: JFET amplifier
Week 13	Lab13: operational amplifier (part1)
Week 14	Lab14: operational amplifier (part 2)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	electronic devices and circuit theory 11th edition, Robert L. Boylestad , Louis Nashelsky	Yes
Recommended Texts		No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Digital Electronics			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT24303				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		**Semester of Delivery**	4	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@mtu.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	P.HD	
Module Tutor			**e-mail**		
Peer Reviewer Name	Dr. Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Electronics Circuits I (MIT23302)	**Semester**	S3
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To learn the basics of logical circuits which are used in computers. 2. To understand how the logical medical instrumentations to work 3. To program the logical medical instrumentations 4. To design the logical medical instrumentations 5. To learn how to use logical tables to perform the logical medical instrumentations 6. TO maintain the logical medical instrumentations 7. To suggest how to build modern the logical medical instrumentations.
Module Learning Outcomes أمخرجات التعلم للمادة الدراسية	At ending of course, student will: 1-know the numbers systems, and conversion between them. 2-know binary codes. 3-design binary gates, and use Boolean algebra. 4-design and simplify the arithmetic circuits. 5- define Karnaugh maps. 6- know how flip-flops works RS, JK. 7- design flip-flops D, T. 8-define the work principles of counters and its types. 9-know the shift registers and types. 10- principles of decoders. 11- identify the Multiplexers and De-Multiplexers. 12-conversion of analog to digital circuits.
Indicative Contents المحتويات الارشادية	**Numbers systems, Binary, Octal, Hexadecimal [4 H].** **Codes numbers [4 H].** **Arithmetic circuits [10 H].** **De Margan's theorems [4 H].** **Karnaugh map [8 H].** **Flip – Flop: RS, RST, JK, D, FF [8 H].** **Asynchronous counter and synchronous [10 H].** **Shift registers [10 H].** **Multiplexer, De multiplexer [4 H].** **Decoder [8 H].** **Analog conversion [4 H].**

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	79	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	46	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدرا سي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3, 9	LO #1, 2, 4,11 and 12
	Assignments	2	10% (10)	3, 13	LO # 4, 5, 7 and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Report	13	10% (10)	13	LO # 6, 8 and11
Summative assessment	**Midterm Exam**	2 hr	10% (10)	8	LO # 1-8
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Number system: Binary numbers, Octal numbers, Hexadecimal numbers,**
Week 2	**Binary codes**
Week 3	**Logic gates, De Margan's theorems, Laws and theorem of Boolean algebra**
Week 4	**Arithmetic circuit, Simplifying logic circuits:**
Week 5	**fundamentals products, sum of products, algebraic simplification**
Week 6	**Truth table to Karnaugh map**
Week 7	**Flip – Flop: RS, RST, JK, D, FF**
Week 8	**Counters: Asynchronous counter**
Week 9	**Counters: synchronous counter**
Week 10	**Shift registers: Serial in -Serial out shift register** **Serial in -Parallel out shift register**
Week 11	**Shift registers: Bidirectional Shift Register**
Week 12	**Multiplexer and De multiplexer**
Week 13	**Decoder**
Week 14	**Digital to Analog converter**
Week 15	**Final Exam (Practical)**
Week 16	**Final Exam (Theoritical)**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Logic Gates (NOT, AND)
Week 2	Lab 2: Logic Gates (OR, NAND, NOR)
Week 3	Lab 3: Logic Gates (XOR, XNOR)
Week 4	Lab 4: Exercises
Week 5	Lab 5: Universal Gates (NAND, NOR)
Week 6	Lab 6: Flip-Flop
Week 7	Lab 7: Adder (Half and Full Adder)

Week 8	Lab 8: Subtractor (Half and Full Subtractor)
Week 9	Lab 9: Comparator
Week 10	Lab 10: Asynchronous Binary Counter Up
Week 11	Lab 11: Asynchronous Binary Down Counter
Week 12	Lab 12: Asynchronous Binary Decade Counter
Week 13	Lab 13: Asynchronous MOD Counter
Week 14	Lab 14: Asynchronous Binary Counter (count from number to another)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	DIGITAL FUNDAMENTALS / FLOYD	YES
Recommended Texts	Digital Logic Design - 4th Edition	NO
Websites	https://www.udemy.com/course/digital-electronics-logic-design/?utm_source=adwords&utm_medium=udemyads&utm_campaign=DSA_Catchall_la.EN_cc.ROW&utm_content=deal4584&utm_term=_._ag_88010211481_._ad_535397282061_._kw_._de_c_._dm_._pl_._ti_dsa-52949608673_._li_1007949_._pd__._&matchtype=&gclid=CjwKCAjwp6CkBhB_EiwAIQVyxcuQ427tsVehXbetXE4NUFlekP4rqq-PrCWgQfIucPuo7Mqz8SXRVxoC5asQAvD_BwE	

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 markof 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 automaticrounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Clinical Chemistry instrumentation			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MIT24304				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGII		**Semester of Delivery**	4	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Dr. Lina Nasseer Kassim		**e-mail**	lina.n.kasim@gu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Hind Adil Jaafar		**e-mail**	hindadil.alhaddad@gmail.com	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. To introduce the clinical chemistry and biochemical mechanism in the human body 2. To describe the types of laboratory medical instruments. 3. To describe the types of clinical chemistry analysis or (tests). 4. To explain the principal work of the laboratory medical devices techniques. 5. To describe the most important compositions in human body. 6. To understanding the maintenance of laboratory medical devices and its electrical and mechanical faults.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of the course, students should be able to: 1. Define the clinical chemistry and recognize what is the laboratory security system and determine the quality control results in medical laboratory. 2. List the principal work of spectrophotometer instruments and derive Beer's-Lambert Law. 3. Desribe the measurement instruments of ions and salts in human body. 4. Identify all the clinical chemistry analysis and their measurement techniques. 5. Discus the importance of minerals in human body and their measurement. 6. Describe the principal work of Elisa technique and list their methods. 7. Explain the electrical conduction concept and their examples in human body. 8. Explain the osmotic conduction concept and their examples in human body. 9. List the types and function of enzyme in human body and their measurements techniques. 10. Discus the importance of proteins in human body and describe their measurements. 11. Explain the importance of fats in human body and explain their measurement techniques. 12. Define the hemoglobin and explain the hemoglobin diseases with its clinical significant. 13. List all types of minerals in human body and describe their daily requirements. 14. Define the immune system and recognize the foreign material and explain the disorders of immune system.
Indicative Contents	Indicative content includes the following:

المحتويات الارشادية	Clinical chemistry definition, analysis lists, work security rules, best laboratory uses guidelines. [3hr]. Spectrophotometer instruments criteria, theory, types, components, advantage and disadvantage, physical and medical application and Beer-Lambert law derivative .[10hr] Electrolyte analyzer definition, features, theory, components, configuration advantages, disadvantages and application. [6hr] Autoanalyzer concept, Blood Gas Analyzer (BGA) criteria, types, theory, components, figuration, advantages and disadvantages. [6hr] ELISA Technique concept, theory ,methods:(direct and indirect), components ,figuration, advantages ,disadvantages and applications [6hr]. Minerals definition, classifications, sources, function, nutrition(mg/day) and diagnostic procedure[6hr]. Electrical conduction concept , examples ,performing tests. Osmotic conduction concept, examples ,performing tests [10hr]. Enzyme definition, classification, function, performing test and clinical significant. [6hr] Proteins definition, classification ,function, clinical significant, Electrophoresis Technique :diagnostic procedure, theory and principle work [6hr]. Fats concept, classification, sources, importance, clinical signification and measurements: Hydro densitometry Weighing (Underwater Weighing, Near – infrared interaction (NIR), Skin Fold Caliper, Dual energy X-ray absorptiometry (DEXA), BMI (Body mass impedance) [10hr] . Hemoglobin definition, structure, analysis, hemoglobin diseases, clinical significant and diagnostic procedure: complete blood count (CBC) [6hr]. Concept of immunology, structure, material and disease diagnostic [3hr].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures - scientific laboratory- data show - summer training- workshops- seminars, written exam, Quizzes and online testing .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدرا سي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدرا سي الكلي للطالب خلال الفصل	125		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction ,Best laboratory uses and quality control.
Week 2	Spectrum instruments and uses.
Week 3	Ion and salt measurement instruments
Week 4	Auto-analysis instruments
Week 5	Mineral measurement instrument

Week 6	Elisa instrument and its uses
Week 7	**Mid term Exam**

Week 8	Electrical conduction
Week 9	Osmotic conduction
Week 10	Enzyme and their measurement
Week 11	Protein and its importance
Week 12	Fats and its importance
Week 13	Hemoglobin
Week 14	Minerals and nutrition
Week 15	Immunological chemistry
Week 16	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Clinical Chemistry instrumentation
Week 2	Lab1: spectrophotometer and colorimeter, theory, principle of work, operation, component's function, maintenance and the faults.
Week 3	Lab2: Flame photometer, types, theory, principle of work, operation, component's function, maintenance and the faults.
Week 4	Lab3: Blood gas analyzer and PH meter, theory, principle of work, operation, components function, normal results, maintenance and the faults.
Week 5	Lab4: Auto-analysis, types, theory, principle of work, operation, component's function, maintenance and the faults.
Week 6	Lab5: Elisa, types, theory, principle of work, operation, components function, maintenance and the faults.
Week 7	Lab6: Hemodialysis and peritoneal technique, theory, principle of work, operation, maintenance and faults.
Week 8	Lab7: Electrophoresis, theory, principle of work, operation, component's function, normal results, maintenance and the faults.
Week 9	Lab 8: Body fat analyzer, theory, principle of work, operation, component's function, normal results, maintenance and the faults.
Week 10	Lab 9: review for the clinical chemistry instrumentation.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Clinical Chemistry Hand book :workbook of principles ,techniques and correlation by N.T.Coleman	yes
Recommended Texts	LABORATORY INSTRUMENTATION AND TECHNIQUES, Book by Dr.Mathew Folaranmi OLANIYAN,Associate Professor,Department of Medical Laboratory Science,Achievers University, Owo-Nigeria,2017.	No
Websites	1.https://byjus.com/chemistry/spectrophotometer-principle/ 2.3.https://www.bosterbio.com/media/pdf/ELISA_Handbook.pdf3.	

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	**Biomedical Transducers and Sensors**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MIT24305**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGII		**Semester of Delivery**	4	
Administering Department	MIT		**College**	College of Engineering Techniques	
Module Leader	Lina Nasseer Kassim		**e-mail**	lina.a.abed@Gu.Edu.Iq	
Module Leader's Acad. Title	Assist Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Prof. Dr. Ameer H. Morad		**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date	23/10/2024		**Version Number**	1.0	

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	Fundamental of Electrical Engineering (AC) - MIET12301	**Semester**	UGI-S2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1. Analyze errors and uncertainty of experimental results obtained from biomedical sensors. 2. Understand requirements, calibration, characteristics, and parameters of biomedical sensors. 3. Design with confidence signal conditioning systems required for processing the sensors responses. 4. Understand the operating principle, types, parameters, signal conditioning, and applications of resistive, reactance variation and self-generating sensors. 5. Understand the operating principle of different types of optical sensors and their features. 6. Understand the operation, models, and parameters of ultrasound transducers. 7. Understand the design, main building blocks, features, and calibration of intelligent sensors.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Define biomedical sensors, biosensors, and biomedical transducers. 2. Classify the biomedical sensors. Acquire knowledge about sensor data processing and feature extraction. 3. Recognize the requirements of biomedical sensors. 4. Explain the Static and dynamic characteristics of biomedical sensors. 5. Explain the requirements of signal conditioning circuits suitable for biomedical sensors. 6. Identify design principles of conditioning circuits. 7. Identify the different types of resistive, reactance variation and self- 8. generating sensors. 9. Explain the operating principle, parameters, calibration and applications. of resistive, reactance variation and self-generating sensors. 10. Identify the different types of optical sensors. 11. Reveal the advantages of optical sensors. 12. Classify ultrasound transducers. 13. Recognize the main parts of ultrasound transducers. 14. List the main features of intelligent sensors.
Indicative Contents المحتويات الارشادية	<u>Indicative Contents including the following:</u> General concept and terminology, Sensor classification and calibration, static and dynamic characteristics, errors [10 hrs] Resistive Temperature Detectors (RTD), Thermistors, light-dependent resistors, signal conditioning for resistive sensors [5hrs] Capacitive sensors, Inductive sensors,

	Electromagnetic sensors, signal conditioning for reactance variation sensors [5 hrs] Thermoelectric sensors, Piezoelectric sensors, Electrochemical sensors, Signal conditioning for self-generating sensors.[7 hrs] Optical techniques, General principles of optical sensing, Fiber-optic basics, Fiber-optic sensor technologies and applications[7 hrs] Fundamentals of ultrasonic-based sensors, Ultrasonic-based sensing methods and applications.[8 hrs] Definition, parameters, features, operating principle , main building blocks and applications.[5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Active learning, where students should be active and involved in the learning process inside the classroom, will be emphasized in the delivery of this course. ➢ Different active learning methods/approaches such as: Engaged Learning, Project-Based Learning, Cooperative Learning, Problem-based Learning, Structured Problem-solving, will be used. ➢ The teaching method that will be used in this course will be composed of a series of mini lectures interrupted with frequent discussions and brainstorming exercises. PowerPoint presentations will be prepared for the course materials. ➢ Use software packages for design and simulation of signal conditioning circuits implemented using these sensors.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خالل الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خالل الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خالل الفصل	125		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1,2	**Introduction to Biomedical Sensors** General concept and terminology, Sensor classification and calibration, static and dynamic characteristics, errors and uncertainty.
Week 3,4	**Resistive Sensors and their signal conditioning** Potentiometers, Strain gages, Resistive Temperature Detectors (RTD), Thermistors, light-dependent resistors, signal conditioning for resistive sensors

Week 5,6	**Reactance Variation and Electromagnetic Sensors** Capacitive sensors, Inductive sensors, Electromagnetic sensors, signal conditioning for reactance variation sensors,

Week 7	**Mid- Exam**
Week 8,9	**Self-Generating Sensors and Signal Conditioning** Thermoelectric sensors, Piezoelectric sensors, Electrochemical sensors, Signal conditioning for self-generating sensors.
Week 10,11	**Optical Sensors** Optical techniques, General principles of optical sensing, Fiber-optic basics, Fiber-optic sensor technologies and applications.
Week 12,13	**Ultrasound Transducers** Fundamentals of ultrasonic-based sensors, Ultrasonic-based sensing methods and applications.
Week 14	**Intelligent Sensors** Definition, parameters, features, operating principle , main building blocks and applications.
Week 15	Preparatory week before final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1,2	Characteristics of various Biomedical sensors(Pulse sensor, Galvanic skin Response, Glucose sensor, EMG sensor).
Week 3,4	Measurement of Resistance, Inductance and Capacitance using bridge circuits.
Week 5	Measurement of temperature using thermistor and RTD.
Week 6	Design of preamplifiers to acquire bio-signals along with impedance matching circuit using suitable ICs.
Week 7,8	Design of EEG, ECG amplifiers and Measurement of heart rate.
Week 9,10	Acquire and display electrical and biological biosignals on a computer using the appropriate hardware and software tools.
Week 11	e-Health Sensor Platform V2.0 using Arduino and Raspberry Pi.
Week 12	Measurement of respiration rate.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Sensors and Signal Conditioning, Ramon Pallas-Areny and John G. Webster, John Wiley & Sons, 2001,2nd Edition	No
Recommended Texts	Biosensors: An Introduction , Eggins, Brian, John Wiley & Sons, 1996,1st Edition	No
Websites	https://www.multisim.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
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language II**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**GU13**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		2	**Semester of Delivery**		4
Administering Department		MIT	**College**	College of Engineering Techniques	
Module Leader	Atheer Abdlkhaleq		**e-mail**	Atheer.abdlkhaleq@gu.edu.iq	
Module Leader's Acad. Title		Assistant Proffessor	**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**		
Peer Reviewer Name		Prof. Dr. Ameer H. Morad	**e-mail**	ameer.h.morad@gu.edu.iq	
Scientific Committee Approval Date		23/10/2024	**Version Number**		1.0

Relation with other Modules العالقة مع المواد الدراسية الاخرى			
Prerequisite module	**English Language1** **GU13**	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	*Module Aims* The module aims of the English Language Course are structured to support learners at the intermediate to upper-intermediate level in enhancing their English language skills and achieving specific learning outcomes. By the end of this course, students will: 1. *Grammar Mastery:* - Achieve a comprehensive understanding of advanced grammar rules, including the use of auxiliary verbs, present simple, present continuous, past simple, present perfect, future forms, questions and negatives, modals, comparatives and superlatives, conditionals, passive voice, relative clauses, present perfect continuous, and reported speech. 2. *Vocabulary Expansion:* - Expand their vocabulary across various topics and contexts, such as everyday expressions, common activities, storytelling, experiences, permissions, hypothetical situations, descriptive details, and phrasal verbs. This will include learning advanced vocabulary related to describing characteristics, actions, and consequences. 3. *Everyday English Proficiency:* - Develop practical language skills for everyday communication, focusing on effective use of everyday expressions, making comparisons, discussing future intentions, and navigating social interactions. This includes enhancing the ability to participate in conversations and use language appropriately in various social settings. 4. *Reading Comprehension:* - Improve reading comprehension skills through engagement with diverse texts, including stories, articles, and informative content. Students will analyze and interpret texts, building the ability to understand complex language structures and themes. 5. *Writing Competence:* - Enhance writing skills by composing various forms of written content, such as short stories, comparative essays, descriptive passages, and reviews. Students will learn to use linking words, express opinions, and structure their writing coherently. 6. *Critical Thinking and Analysis:* - Develop critical thinking skills by analyzing and discussing texts, drawing comparisons, and making inferences. Students will be encouraged to engage with texts critically, assessing arguments and evidence. 7. *Cultural Awareness:* - Gain insights into different cultures and lifestyles through readings and discussions, fostering a broader understanding of the world. This will help students develop cultural sensitivity and an appreciation for diversity. .

	8. *Effective Communication:* - Improve their ability to express ideas clearly and confidently in both spoken and written forms. The course will emphasize clarity, coherence, and fluency in communication, preparing students to articulate their thoughts effectively. 9. *Language Assessment Preparation:* - Prepare for language assessments, including a final review and exam, by consolidating their understanding of grammar, vocabulary, and reading comprehension. This will include practicing various question formats and test-taking strategies. 10. *Independent Learning:* - Develop skills for independent learning, enabling students to continue enhancing their English proficiency beyond the course. This includes fostering a habit of self-study and utilizing resources effectively. 11. *Language Fluency:* - Work towards achieving greater fluency in English, allowing students to engage in complex conversations, express nuanced ideas, and write with increased sophistication and ease. 12. *Cultural Competency:* - Build cultural competence and sensitivity through exposure to diverse texts and discussions about different cultural perspectives. This will enhance students' ability to interact respectfully and knowledgeably in multicultural contexts. These module aims provide a comprehensive framework for student learning and development, ensuring that participants gain both linguistic competence and cultural awareness throughout the course.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Module Learning Outcomes Students will comprehend and discuss a variety of texts on diverse topics, enhancing their reading and analytical skills. Students will expand their vocabulary related to various topics, including everyday expressions, actions, experiences, and descriptive details. Students will be able to write various forms of text, including short stories, comparative essays, descriptive passages, and reviews. Students will use auxiliary verbs correctly in sentences, mastering their application in different tenses. Students will distinguish between present simple, past simple, present continuous, and present perfect tenses, understanding their appropriate contexts.

	Students will study and apply modal verbs such as must, should, can, and could, understanding their use in expressing necessity, possibility, and advice. s tudents will understand and correctly use comparative and superlative adjectives to describe and compare objects and situations. Students will focus on verb patterns and express future intentions using appropriate grammatical structures. Students will learn the correct usage of first and second conditionals and the passive voice in various contexts. Students will effectively use defining and non-defining relative clauses to provide additional information in sentences. Students will describe ongoing actions and experiences using the present perfect continuous tense and appropriate time expressions. Students will learn to report statements, questions, and commands accurately, mastering the use of reported speech. Students will discuss hypothetical situations and understand the use of time and conditional clauses in various contexts. Students will acquire and use advanced vocabulary, including phrasal verbs and synonyms/antonyms, in both written and spoken communication.
Indicative Contents المحتويات الارشادية	Intermediate Book (Based on "New Headway Plus: Intermediate Student's Book") Total Hours: 21 hours Week 1 (2 hours) Grammar: Auxiliary Verbs (Unit 1) Focus: Usage of "to be," "have," and other auxiliary verbs. Vocabulary: Everyday Expressions (Unit 1) Reading: "It's a Wonderful World!" (Unit 1) Writing: Basic sentences using auxiliary verbs Week 2 (2 hours) Grammar: Present Simple (Unit 2) Focus: Usage in daily routines and habits. Vocabulary: Common Activities (Unit 2) Reading: "Get Happy!" (Unit 2) Week 3 (2 hours) Grammar: Present Continuous (Unit 2) Focus: Actions happening now. Vocabulary: Actions and Activities (Unit 2) Reading: "Simple or Continuous?" (Unit 2) Week 4 (2 hours) Grammar: Past Simple (Unit 3)

	Focus: Narrating past events. Vocabulary: Telling Stories (Unit 3) Reading: "Telling Tales" (Unit 3) Writing: Writing a short story using past simple tense Week 5 (2 hours) Grammar: Present Perfect (Unit 1, 3) Focus: Describing experiences and actions with present relevance. Vocabulary: Experiences and Achievements (Unit 1, 3) Reading: "Present Perfect Stories" (Unit 1, 3) Week 6 (2 hours) Grammar: Future Forms (Unit 5) Focus: "Going to," "will," and present continuous for future plans. Vocabulary: Plans and Predictions (Unit 5) Reading: "On the Move" (Unit 5) Week 7 (2 hours) Grammar: Questions and Negatives (Unit 4) Focus: Formulating questions and negative sentences. Vocabulary: Social Interactions (Unit 4) Reading: "Nothing but the Truth" (Unit 4) Week 8 (2 hours) Grammar: Modals (Unit 4, 7) Focus: Expressing obligation, permission, and possibility. Vocabulary: Permissions and Possibilities (Unit 4, 7) Reading: "Doing the Right Thing" (Unit 4) Week 9 (2 hours) Grammar: Comparatives and Superlatives (Unit 6) Focus: Comparing people, objects, and situations. Vocabulary: Describing Characteristics (Unit 6) Reading: "Making Comparisons" (Unit 6) Writing: Comparative essay Week 10 (1 hour) Grammar: Conditionals (Unit 8) Focus: First and second conditional structures. Vocabulary: Hypothetical Situations (Unit 8) Reading: "Just Imagine!" (Unit 8) Week 11 (1 hour) Grammar: Passive Voice (Unit 2, 3) Focus: Usage in various tenses to emphasize actions. Vocabulary: Actions and Consequences (Unit 2, 3) Reading: "Passive Constructions" (Unit 2, 3) Week 12 (1 hour) Grammar: Relative Clauses (Unit 8) Focus: Defining and non-defining clauses. Vocabulary: Descriptive Details (Unit 8) Reading: "Descriptive Sentences" (Unit 8) Week 13 (1 hour) Grammar: Present Perfect Continuous (Unit 10)

	Focus: Describing ongoing actions and experiences. Vocabulary: Time Expressions (Unit 10) Reading: "Obsessions" (Unit 10) Writing: Describing ongoing activities using present perfect continuous Week 14 (1 hour) Grammar: Reported Speech (Unit 11) Focus: Reporting statements, questions, and commands. Vocabulary: Reporting Verbs (Unit 11) Reading: "Reported Conversations" (Unit 11) Week 15 (2 hours) Review and Exam Preparation Focus: Reviewing key grammar, vocabulary, and reading topics covered. Upper-Intermediate Book (Based on "New Headway Plus: Upper-Intermediate Student's Book") Total Hours: 7 hours (Max 25% of Total Content) Week 8 (1 hour) Reading: "Getting on Together" (Unit 7) Focus: Permissions and possibilities. Week 9 (1 hour) Vocabulary: Describing Characteristics (Unit 6) Reading: "Making it Big" (Unit 6) Week 10 (1 hour) Vocabulary: Hypothetical Situations (Unit 8) Reading: "Going to Extremes" (Unit 8) Week 11 (1 hour) Vocabulary: Actions and Consequences (Unit 7) Reading: "Getting on Together" (Unit 7) Week 12 (1 hour) Vocabulary: Descriptive Details (Unit 8) Reading: "Going to Extremes" (Unit 8) Week 13 (1 hour) Vocabulary: Time Expressions (Unit 10) Reading: "Risking Life and Limb" (Unit 10) Week 14 (1 hour) Vocabulary: Reporting Verbs (Unit 11) Reading: "In Your Dreams" (Unit 11)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning and Teaching Strategies for the English Language Course Interactive Language Practice: Engage learners in communicative activities that promote active participation and practical language use. Strategies include pair work, group discussions, role-plays, and language games, which are designed to foster speaking and listening skills in an engaging and supportive environment. Use of Authentic Materials: Integrate authentic materials such as videos, audio recordings, and reading texts that reflect real-life language use. These materials help learners develop their listening, speaking, reading, and writing skills by exposing them to various dialects, accents, and real-world contexts. Task-Based Learning: Design tasks and projects that require learners to use the target language to accomplish specific objectives or solve problems. This approach promotes meaningful language use, encouraging learners to think critically and develop problem-solving skills while using English in practical scenarios. Visual Aids and Multimedia: Utilize visual aids, such as charts, diagrams, and multimedia resources, to enhance language learning and comprehension. These tools aid in vocabulary acquisition, provide context, and support understanding, making abstract concepts more concrete and accessible. Error Correction and Feedback: Provide timely and constructive feedback on learners' language production, focusing on both strengths and areas for improvement. Encourage self-correction and peer correction, fostering a supportive learning environment where students can learn from their mistakes and from each other. This approach helps build confidence and promotes a growth mindset.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ 15اسبوعا			
Structured SWL (h/sem) الحمل الدراس المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراس غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراس الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	5, 10, 14	LO #1, 2, 8 and 7
	Assignments	3	15% (15)	2, 9, 13	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-7
Summative assessment	Midterm Exam	2 hours	10% (10)	7	LO # 1-4
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Grammar: Auxiliary Verbs (Intermediate: Unit 1) Vocabulary: Everyday Expressions (Intermediate: Unit 1) Reading: "It's a Wonderful World!" (Intermediate: Unit 1) Writing: Basic sentences using auxiliary verbs (Intermediate: Unit 1)
Week 2	Grammar: Present Simple (Intermediate: Unit 2) Vocabulary: Common Activities (Intermediate: Unit 2) Reading: "Get Happy!" (Intermediate: Unit 2)
Week 3	Grammar: Present Continuous (Intermediate: Unit 2) Vocabulary: Actions and Activities (Intermediate: Unit 2) Reading: "Simple or Continuous?" (Intermediate: Unit 2)
Week 4	Grammar: Past Simple (Intermediate: Unit 3) Vocabulary: Telling Stories (Intermediate: Unit 3) Reading: "Telling Tales" (Intermediate: Unit 3) Writing: Writing a short story using past simple tense (Intermediate: Unit 3)
Week 5	Grammar: Present Perfect (Intermediate: Unit 1, 3) Vocabulary: Experiences and Achievements (Intermediate: Unit 1, 3) Reading: "Present Perfect Stories" (Intermediate: Unit 1, 3)
Week 6	Grammar: Future Forms (Intermediate: Unit 5) Vocabulary: Plans and Predictions (Intermediate: Unit 5) Reading: "On the Move" (Intermediate: Unit 5)
Week 7	Grammar: Questions and Negatives (Intermediate: Unit 4) Vocabulary: Social Interactions (Intermediate: Unit 4) Reading: "Nothing but the Truth" (Intermediate: Unit 4)
Week 8	Grammar: Modals (Intermediate: Unit 4, 7) Vocabulary: Permissions and Possibilities (Intermediate: Unit 4, 7; Upper-Intermediate: Unit 7)

	Reading: "Doing the Right Thing" (Intermediate: Unit 4; Upper-Intermediate: Unit 7 "Getting on Together")
Week 9	Grammar: Comparatives and Superlatives (Intermediate: Unit 6) Vocabulary: Describing Characteristics (Intermediate: Unit 6; Upper-Intermediate: Unit 6) Reading: "Making Comparisons" (Intermediate: Unit 6; Upper-Intermediate: Unit 6 "Making it Big") Writing: Comparative essay (Intermediate: Unit 6)
Week 10	Grammar: Conditionals (Intermediate: Unit 8) Vocabulary: Hypothetical Situations (Intermediate: Unit 8; Upper-Intermediate: Unit 8) Reading: "Just Imagine!" (Intermediate: Unit 8; Upper-Intermediate: Unit 8 "Going to Extremes")
Week 11	Grammar: Passive Voice (Intermediate: Unit 2, 3) Vocabulary: Actions and Consequences (Intermediate: Unit 2, 3; Upper-Intermediate: Unit 7) Reading: "Passive Constructions" (Intermediate: Unit 2, 3; Upper-Intermediate: Unit 7 "Getting on Together")
Week 12	Grammar: Relative Clauses (Intermediate: Unit 8) Vocabulary: Descriptive Details (Intermediate: Unit 8; Upper-Intermediate: Unit 8) Reading: "Descriptive Sentences" (Intermediate: Unit 8; Upper-Intermediate: Unit 8 "Going to Extremes")
Week 13	Grammar: Present Perfect Continuous (Intermediate: Unit 10) Vocabulary: Time Expressions (Intermediate: Unit 10; Upper-Intermediate: Unit 10) Reading: "Obsessions" (Intermediate: Unit 10; Upper-Intermediate: Unit 10 "Risking Life and Limb") Writing: Describing ongoing activities using present perfect continuous (Intermediate: Unit 10)
Week 14	Grammar: Reported Speech (Intermediate: Unit 11) Vocabulary: Reporting Verbs (Intermediate: Unit 11; Upper-Intermediate: Unit 11) Reading: "Reported Conversations" (Intermediate: Unit 11; Upper-Intermediate: Unit 11 "In Your Dreams")
Week 15	Review and Exam Preparation

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**

Required Texts	• L. Soars and J. Soars, New Headway Plus - Intermediate, 4th ed. Oxford: Oxford University Press, 2019. • Soars, J., Soars, L. New Headway Plus: Upper-Intermediate. United Kingdom: Oxford University Press.	Yes
Recommended Texts	• Audio CDs or Online Audio: Recordings of listening exercises, dialogues, and pronunciation practice.	No
Websites	Collage E- Library	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Arabic Language II**	**Module Delivery**
Module Type	**Basic**	☒ **Theory**
Module Code	**GU21**	☐ **Lecture**
ECTS Credits	**2**	☐ **Lab**
SWL (hr/sem)	**50**	☐ **Tutorial**
		☐ **Practical**
		☐ **Seminar**

Module Level	UGI	**Semester of Delivery**	1
Administering Department	MIT	**College**	College of Engineering Techniques
Module Leader	Abdulhusain Ali Abdulhusain	**e-mail**	abdulhusain.a.abd@gu.edu.iq
Module Leader's Acad. Title	Assist. lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor		**e-mail**	
Peer Reviewer Name	Zianab Khadim Musilm	**e-mail**	Zianab.khadim@gu.edu.iq
Scientific Committee Approval Date	23/10/2024	**Version Number**	1.0

Relation with other Modules
العالقة مع المواد الدراسية الاخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم و المحتويات الارشادية

Module Aims أهداف المادة الدراسية	1- التعرف على اللغة وعلاقتها بالمجتمع 2- يتعرف الطالب على وظائف اللغة وخصائصها ومزاياها 3- يتعلم الفرق ب ن ي الازدواجية اللغوية والثنائية اللغوية 4- معرفة الطالب بالظواهر اللغوية من حيث الاعراب والتنغيم 5- معرفة الطالب ظاهرة التضاد والمشترك اللفضي والترادف 6- معرفة لطالب لظاهرة التخفيف والاشتقاق 7- معرفة الطالب لظاهرة التعريب والنحت والتوليد 8- قل ولا تقل: الأخطاء الشائعة لدى المتكلم ن ي والكتاب 9- معرفة المثلث اللغوي للمفردة اللغوية 10- يتعرف الطالب على الجمل التي لها محل من الاعراب وعلى الجمل التي ليس لها محل من الاعراب . 11- التعرف على تاريخ المعاجم العربية والفرق ب ن ي المصدر والمرجع .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	. مخرجات التعلم للمادة الدراسية هي: - 1يتعرف الطالب على تاريخ اللغة العربية وعلاقتها بالعلوم الأخرى وخاصة من الناحية المجتمعية - 2ان يتعلم الطالب الفرق ب ن ي الازدواجية اللغوية والثنائية اللغوية - 3التعرف على ي الحياة اليومية كيفية استخدام الازدواجية اللغوية والثنائية اللغوية ن ف - 4ان يعرف الطالب ظواهر اللغة العربية - 5ان يتعلم الطالب كيف ان الحركة الاعرابية تؤثر على مع ن ن الكلمة - 6معرفة الطالب لخصائص العربية - 7معرف الطالب للاخطاء اللغوية الشائعة ب ن ي المتكلم ن ي - 8معرفة ي ليس لها لها محل من الاعراب وال ن ي الطالب للجملة العربية وكيفية التفريق ب ن ي الجمل ال ن محل من الاعراب - 9يتعرف الطالب على تاريخ المعجم العرر ي ئ - 10يتعرف على أنواع المعاجم العربية القديمة والحديثة - 11معرفة الفرق ب ن ي المصدر والمرجع ١٢ -القطعة الن ربية تساعد الطالب على كيفية تطبيق القضايا اللغوية على النصوص العربية -13التعلم على مهارات لغوية :تنمية الذوق اللغوي، وتحسين الأسلوب لدى المتعلم
Indicative Contents المحتويات الارشادية	**1-اللغة وعلاقتها بالمجتمع]ساعه 2]** **2 معرفة اللغة ووظائفها , ساعه 2** **3 التعرف على الازدواجية اللغوية والثنائية اللغوية , ساعه 2** **4 معرفة الطالب بخصائص اللغة العربية ومزاياها، ساعه 2** **5 معرفة الطالب ظاهرة الاعراب، ساعه 2** **6 -معرفة لطالب ظاهرة الجرس والتنغيم، ساعه 2** **7معرفة الطالب ظاهرة الاشباك اللفضي ساعه 2** **8 معرفة ظاهرة التخفيف والاشتقاق ، ساعه 2** **9 -تعلم ظاهرة التعريب ساعه 2** **10 التعرف على النحت العربي وطرقه،ساعه 2** **11 قل ولا تقل: الأخطاء الشائعة لدى المتكلم ن ي والكتاب ، ساعه 2** **12 قطعة نثربية دراسة لغوية دلالية ، ساعه 2** **13- الجمل التي ليس لها محل من الاعرابوالتي لها محل من الاعراب ، ساعه 2** **14- التعرف على تاريخ المعجم العر ر ي ئ وانواعه، ساعةدراسة نماذج من المراسلات الادارية و تطبيقها في الكتابة (2 ساعات)**

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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	يتم تشجيع الطالب على المشاركة والمشاركة الفعالة في الدروس من خلال لمناقشات الجماعية والانشطة التفاعلية. يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي و المشاريع الجماعية، حيث يتعاون الطالب مع بعضهم البعض لتحقيق أهداف التعلم المحددة. يتم توف ت فرص للطالب لتطبيق المفاهيم والمهارات المكتسبة في سياقات عملية وواقعية، مما يعزز التفاعل الفعال مع المادة. يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب و الانترنت للبحث والتعلم الذاتي توفردود فعل فورية: تم توف تردود فعل فورية وتقييم مستمرللطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم عمل تحسين أدائهم وتطوير مهاراتهم يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والانشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب استخدام هذه الاسترا تيجيات، يتم تعزيز التفاعل والتعلم الفعال بالمشاركة واكتساب المعرفة والمهارات بشكل شامل.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ15 اسبوعا

Structured SWL (h/sem) الحمل الدرا سي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا سي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدرا سي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) االحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	5, 10,13	LO #1, 5, 10 and 11
	Assignments	3	15% (15)	2, 5,12	LO # 3, 4 and 7
	Projects / Lab.				
	Report	1	10% (10)	13	LO # 5,8,10
Summative assessment	Midterm Exam	2 hours	10% (10)	7	LO # 1-7
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

الاسبوع الاول	اللغة وعلاقتها بالمجتمع
الاسبوع الثاني	الازدواجية اللغوية والثنائية اللغوية
الاسبوع الثالث	خصائص اللغة العلابية ومزاياها
الاسبوع الرابع	ظواهر اللغة العربية
الاسبوع الخامس	ظاهرة التنغيم
الاسبوع السادس	ظاهرة المشترك اللفضي
الاسبوع السابع	مراجعة وامتحان
الاسبوع الثامن	ظاهرة الاشتقاق والترادف
الاسبوع التاسع و العاشر	ظاهرة التخفيف والتعريب والنحت
الاسبوع الحادي عشر	دراسة تطبيقية لقطعة نثر بية
الاسبوع الثاني عشر	المثلث اللغوي
الاسبوع الثالث عشر و الرابع عشر	صورة تحليلية لأبيات شعرية والجملة العربية والمعجم في اللغة العربية
الاسبوع الخامس عشر	امتحان نهاية الفصل

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?

Required Texts	بن ذريل، عدنان " اللغة والأسلوب دراسة "الطبعة الثانية،	Yes
Recommended Texts	بحيري سعيد في فقه اللغة العربية 2000	Yes
Websites	The Collage E-Library	

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.				